



Rancheros In the La Paz watershed

2013

Household Survey Report

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For the past 300 years, people have been living the ranching life in Baja California Sur. Life is rapidly changing for a variety of reasons. Roads facilitate travel to further distances and job opportunities seem to become more and more distant. Even life within the ranching home is changing as solar brings electricity to the home, and the municipality delivers water from the city. How are rancheros changing? Are they as resilient to the harsh desert climates as they once were? Are they doing better?

Purpose

The purpose of the study is to assess the adaptive capacity and vulnerability of rancheros, specifically in regards to drought and water scarcity. This study was undertaken to understand what the changing circumstances mean for the *rancheros sudcalifornianos*, in order to gain a deep understanding of the socio-economic characteristics of the population living in the La Paz water recharge zone and their relationship to the environment.

The Team

This study would not have been possible without the support of Universidad

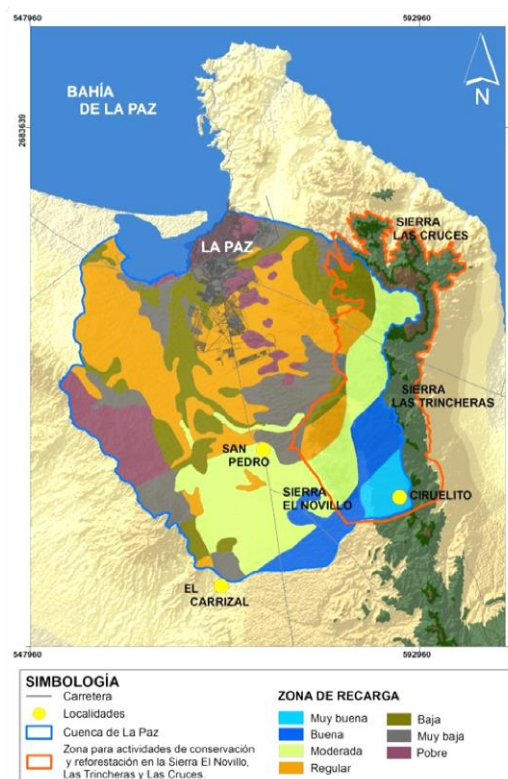
Autonoma de Baja California Sur (UABCS) and Niparaja. Ten UABCS students were employed to conduct the surveys by sitting down with rancheros in their homes, for up to an hour at a time. Surveys were conducted in July and August 2013, one year after a 6 year-long drought.

Survey

The survey included 40 questions about single family residential water supply and the actions families take to respond to drought. In particular, we wanted to know if drought and water scarcity contribute to ranch abandonment. To understand how well prepared rancheros are for the future, we also asked about their savings, plans to cope with future drought, their ability to "read" environmental signals to identify droughts, and their propensity to migrate. We further asked about how they earn their livelihoods, the characteristics of their ranches, what social support systems they have in place, and what educational investments they make.

Sample

So that we may report our results with 95% confidence, we sampled 120 households in



Source: Sociedad de Historia Natural Niparaja

the designated water recharge zone ("Muy Buena," "Buena," and "Moderate" areas) of the Sierra las Trincheras and Sierra el Novillo between Colosio and Highway 1 as shown on the map above. Due to the difficulty of travel on the dirt roads of the sierras, we completed a dispersed purposeful sample. We obtained a 90% response rate, representing 485 individuals.

About La Paz Rancheros

Rancheros in the La Paz watershed seem happy living in the mountains – more than half (58%) said that they would not leave under any circumstance. One respondent said “vive muy agusto, es muy feliz aqui!” (life is very comfortable here, we are very happy!) If members of the households left, their primary reasons were to find work or to get married.



- ◆ The mean age of the heads of households in our sample was 58.
- ◆ 87% of the heads of households in our sample had some type of formal education.
- ◆ Only 5.8% of the respondents said that ranching accounted for their entire livelihood, but 45% said that ranching accounted for some portion of their income.
- ◆ Many ranches we visited had a solar panel that powered a radio and other small appliances.
- ◆ Most (87%) buy food, while 3% grow their own food, and another 3% do both. Many rancheros appreciated the food trucks that deliver groceries in the area.
- ◆ Many rancheros (44%) rely on their own experience to read the weather, but also rely on collective knowledge in the community (28%). Yet they are also able to access other news from the radio (27%), TV (38%), and 1 person said they check the Internet.
- ◆ Most of the respondents reported that the head of household was a “jornalero,” a day laborer. 23% reported that they receive some part of their income from the government-sponsored temporary work programs (PET). 47% said that they receive income from work other than PET or ranching.

93%

Respondents report that they have noticed that the weather has become more unpredictable in the last 10 years.

84%

Respondents have said that water scarcity and drought are their biggest environmental concerns.

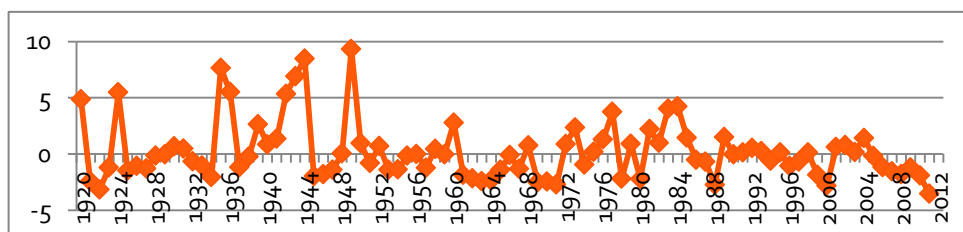
29 YEAR OLD RANCHING WOMAN

“I remember when I was young the rains used to begin earlier in the month of June and July but now, no, not anymore.”

Drought

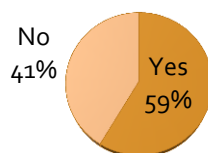
Drought and water scarcity are the number one environmental concern for rancheros. Reports from the rancheros corroborates scientific measurements that the La Paz water recharge zone is getting drier, as illustrated in the graph below. Rains used to start in June, but now they

wait until late August. Besides the last drought that ended in 2012, respondents remembered the drought in 1975 that ended with Hurricane Liza. They remembered riding by horseback to fetch water, and some people moved to locations that had better water resources.

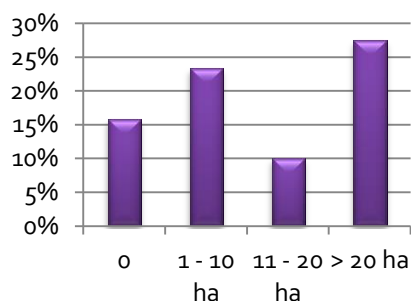


Annual time series of the Modified Palmer Drought Severity Index (PMDI) for La Paz, Mexico where the y-axis represents wetness (positive) to dryness (negative).

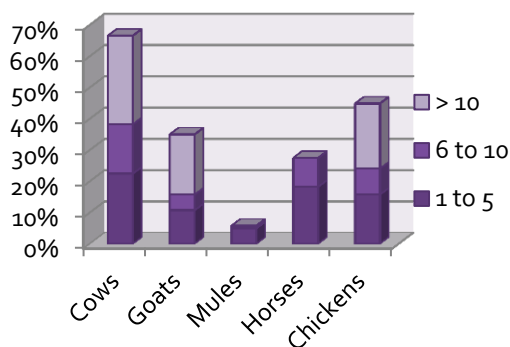
Do you own a title to your property?



How many hectares do you own?



What types of animals do you own?



78%

Respondents report that they have health insurance.

27%

Respondents say that there is someone with a chronic illness or disability in their household.

Adaptive Capacity of Rancheros

We learned a lot about the adaptive capacity of rancheros through this study. Adaptive capacity is the ability to withstand crises over the long term. When studying adaptive capacity, we can measure 5 aspects, called capitals: financial, physical, natural, social, and human. When we understand which capitals people have available to them, we can better understand what their needs are.

Financial Capital

Most people recognize that when there is a disaster, people with more financial capital – more money – will probably have an easier time coping. The survey asked rancheros where they obtained their income from, but to protect their privacy, we did not ask how much they make per year. Rancheros have diverse livelihoods beyond raising animals. 61% reported that they earn money from two or more incomes. 10% have some kind of property insurance, whether for their land or animals, or to protect against disaster damage. When asked what the obstacles were to buying insurance, respondents said that they could not travel to the city to buy it. Others reported that the cost did not justify the benefit. 19% of the respondents said they have access to loans or credit. This data suggests that there is a great potential here for microloan and microinsurance programs.

Physical Capital

For rancheros, another important source of survival is physical capital. In most cases, families must prove that they own the land in order to receive government services, like drought relief. 59.2% of respondents reported that they own the title to their land. 33.3% said that they own 20 hectares or less, while 27.5 own more than 20.

Animals are important physical capital during times of drought. Many respondents said that drought affects their animals first and hardest. To save their animals, corralling animals is an important coping strategy. Six households said that they would sell their animals to survive a future drought. The majority of households (68%) own cows. Almost half (49%) raise chickens. 40% own goats. 18% own horses, and 6% own mules.

Human Capital

Human capital is the wealth of knowledge and skills that we develop. In times of crisis, having access to information and being able to analyze that information is important. In terms of formal education, 22% of the head of households in our study received an education beyond the elementary level.

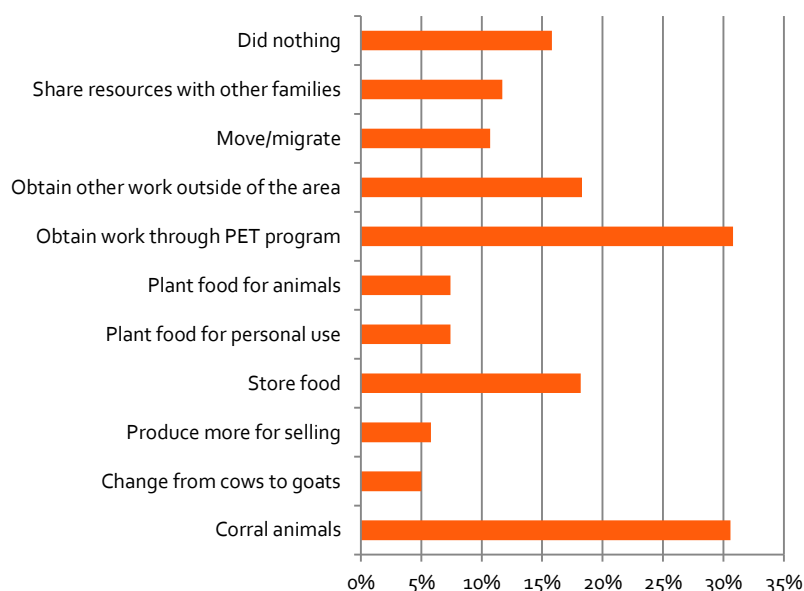
Being able to work is one of the most important strategies for rancheros in times of drought. When asked how they plan to pay for damages in the next drought, 15% said that they will work more. Participating in the temporary work program (PET) was the highest ranked strategy to cope with the last drought (31%).

Older heads of household may have more difficulty in finding extra work when times are tough. The average age of the heads in our study was 58. Of households that lived in the same community their entire lives, the heads were much older, with an average age of 72. Fortunately, less than a third (27%) reported that someone in their household had a chronic illness or disability. 78% of households said that they had health insurance to help if someone in their family fell ill or suffered an injury. Special attention should be paid to households with elderly and disabled family members in planning for emergency situations, for example, if they need to be evacuated.

Social Capital

Social capital is our connection to other people – our family, our friends, and our communities. In times of crisis, we can often turn to our social circles for help. 11% of the respondents in this study said that they moved to cope with the last drought. Over half (53%) said that they had contact information of someone in another place, if they found themselves in a situation where they had to migrate. Only three household respondents told us that if there were

Actions taken in response to last drought



a future drought, they would rely on their family for help. 11% of respondents said that they were a member of an organization like a parent association or a water committee. However, as shown in the center graph, 12% of households reported that they worked with other families to share resources in the last drought. 28% said that they would collaborate to survive future droughts. This suggests a strong potential for building social capital for rancheros to work together in times of drought.

Water Infrastructure

Natural Capital

Natural capital is made up of the natural resources that people use to survive. In this study, we were interested in how rancheros are able to manage their water resources, especially during drought. We asked about water storage, access to the pipe network, and water conservation.

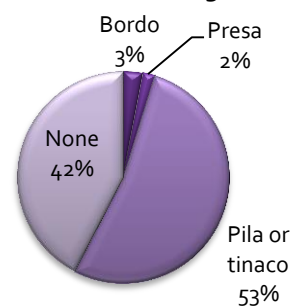
Most of the respondents fetch their drinking water from wells (60%) and bodies of water at the surface, like arroyos (10%), but many (35%) also get their water from the municipal pipe network and water trucks. Some (19%) even use municipal water for their animals.



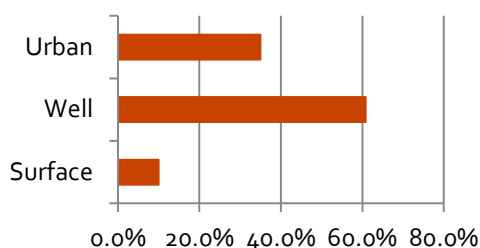
55% said that they have a concession with CONAGUA to access municipal water. The picture to the left shows a CONAGUA tank. 47% save water for future droughts in a tinaco.

Almost all of the houses we visited in the high mountains had outhouses.

Do you have a functional form of water storage?



How do you obtain drinking water?



Opportunities for the Future

Ranching in the rural mountains is a 300 year old legacy, and newcomers to the area can learn a lot from people who have survived droughts in the desert for so long. Likewise, many rancheros are eager to learn new skills. On the whole, they recognize government agencies as sources of information and education.

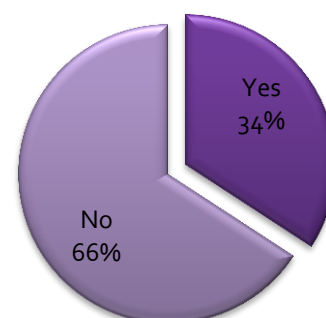
This is good news for government agencies who want to work with ranching communities. 34% of our respondents said that they already participated in a capacity building workshop on topics of water conservation, economic development, and weather. Respondents reported that SAGARPA, CONAZA, FONDEN and SEDESOL were already active in their communities in providing education opportunities.

Rancheros are enterprising. When we visited their houses, rancheros offered us homemade cheese, plants they grew in their nurseries, and handpicked pitahayas. They said that they are eager to learn more skills that will help them bring in more income. When we asked them what kind of capacity building workshops they were interested in, they suggested: water conservation, health and medicine classes (for humans and animals), cooking and baking, advanced ranching and agriculture skills, carpentry, embroidery, gardening, hair styling, arts and crafts, woodworking, and mechanics. Agencies could add financial literacy workshops to their educational programs to teach rancheros basic accounting practices for their new enterprises.

The rancheros reported that they rely on the government for services during a drought. Nine households reported that they learn about droughts through government workshops and meetings. 48% said that they think that the government is primarily responsible to help families in times of drought, and 29% said that they will look to the government for help in the next drought.

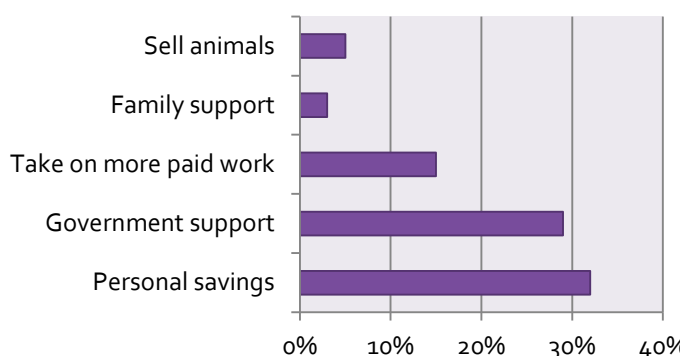
Rancheros already turn to government agencies as leaders. In addition to disseminating information, agencies can build social capital within the committees by encouraging rancheros to join local committees to be able to make decisions about what happens in the sierras. Agencies would benefit from the local knowledge that rancheros bring from their experience of living in this area for over three centuries.

Have you participated in a capacity building workshop?

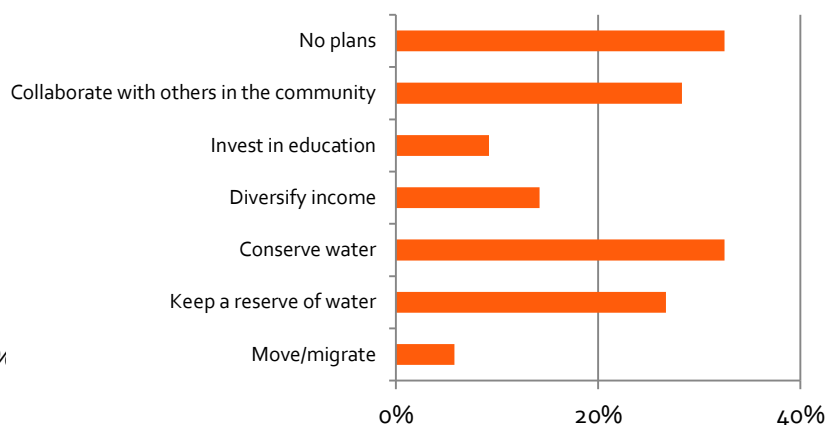


A ranchero offers a round of her homemade cheese.

How do you anticipate your family will pay for the next drought?



Actions planned for future droughts



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Rosario and Ishmael Cruz show us their artisanal wood crafts.

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This research was approved the Institutional Review Board of Colorado State University in January 2013.



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