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I. Peruvian Work- Improvement of Alpaca Production in the Department of Puno

Nunoa Project's Peruvian work includes working with alpaca producers to help improve their livelihood through more efficient production of crias and fiber, and improving animal health. The project is carried out in four communities in Pucara district and one in Lampa district involving a total of 58 producers. We make biannual visits to all communities to work directly with the producers. The exposure of students and veterinarians to the challenges and rewards of working in international agriculture is also a very important part of our work.

Objectives of this program include:

1. Prevention of death due to enterotoxemia in alpaca crias through a vaccination program.
2. Improving the production and quality of fiber through lending of superior quality breeding males and providing training programs for producers.
3. Investigation of diseases that cause mortality in alpaca herds using field and laboratory diagnostics.
4. Improving the health status of herds by training alpaca producers and community animal health technicians and providing veterinary advice to help solve producers' problems.

A. Nunoa Project Alpaca Work- Puno- January to March 2016

From January to March 2016 the Nunoa Project had a veterinary team working in the Department of Puno. The program team was: Coordinators: Dr. Jane Wheeler (CONOPA) and Dr. Steve Purdy (Nunoa Project); Peruvian Field Veterinarians: Gerardo Diaz R. Ortiz and Jesus Vilca Turin; and Peruvian Field Veterinary Assistant Gerald Urbano Morales. Dr. Diaz is the person in primary liaison with the five communities (approximately 100-120 people in each) in which we work.

Activities performed during this time included:

- A. Seminars and training
 - a. Eight combined presentations were given in Pucara and one was given in each of the five participating communities. CONOPA instructional videos were presented, reinforced by workbooks for each producer. Power Point presentations were used and printed material was distributed for each producer. Presentations included: Alpaca Health and Breeding Management, Selection and Breeding of Alpacas, Alpaca Pastures and Nutrition, Prevention of Enterotoxemia Using Vaccine, and Health Problems in Adult Alpacas. Three CONOPA manuals were given to all producers: Caring for Breeding Alpacas, Health in Adult Alpacas, and Techniques for Improvement in Raising Alpacas.
- B. Identification of pregnant females with ear tags so that results of the enterotoxemia vaccine program could be evaluated in their crias and so that producers would be able to start keeping breeding and birthing records.
- C. Enterotoxemia vaccination with Enterotox[®] vaccine produced in Peru; pregnant females and newborn crias were both vaccinated by team members and producers.
- D. Selection of breeding females and loan of Nunoa Project superior breeding males. Selection was made by team members and producers. These females were checked for pregnancy with ultrasound by a Nunoa Project veterinary team in July 2016; results are presented later. The loan of 11 white Huacaya breeding males and two white Suri males was for an average time period of 3.5 months.



Drs. Diaz and Purdy speaking with alpaca producers after working with their herd.

- E. Veterinary services provided during this period:
- Ten field necropsies were performed on deceased crias presented to the team. Findings included: moderate catarrhal enteritis; colibacillosis; high loads of small coccidia; severe hemorrhagic enteritis, diagnosed with enterotoxemia; and severe hemorrhagic enteritis with concomitant pneumonia.
 - Community veterinary treatments were performed as requested. These included: (1) an *E. coli* outbreak which was controlled with antibiotics, anti-inflammatories and vitamins; (2) one outbreak of diarrhea in approximately 15 crias which was controlled with five doses of antibiotics, anti-inflammatories, and vitamins; (3) one breeding animal presented with skin trauma and infection which was treated with antibiotics and anti-inflammatory medications; (4) one outbreak of coccidiosis in crias which was controlled with medication; rotation and cleaning of pastures was also suggested; (5) one outbreak of diarrhea which was controlled with a single dose of sulfamethoxazole intramuscularly in a total of 15 crias; and (6) one outbreak of keratoconjunctivitis in 10 animals which was controlled with two doses of Clindamycin IM and ophthalmic ointment.

Objectives achieved:

- We trained approximately 50 producers and community animal health technicians in the five communities on crucial issues for the production of alpacas: selection and breeding, and alpaca health management in adults and crias.
- Identification ear tags were installed in pregnant females to facilitate the future implementation of breeding and birthing records in four communities; one community already has this program implemented.
- We achieved approximately 80% compliance with the enterotoxemia vaccination program, which along with climatic factors (low rainfall) effectively controlled the disease as only one isolated case occurred in the five communities in an unvaccinated group.
- The loan of the Nunoa Project superior breeding males benefited producers in addition to the selection and tagging of 372 quality females to which they were bred in the five communities. An approximate ratio of 25-35 females per male was selected based on past excellent results in Puno. The pregnancy rate was expected to increase in these groups to an average of 80% as it had in past trials. The results from the July 2016 Nunoa Project veterinary team visits to the communities are presented below. Farmers typically suffer from low pregnancy rates of 30-50% because of exposure of females to inadequate numbers of and/or poor quality males. Limited exposure time to breeding males also results in low pregnancy rates. Introduction of reproduction record keeping is critical to allow producers to evaluate their production and make appropriate changes.

5. A preliminary report was generated on the causes of death in crias during the 2016 birthing season which serves as a starting point for future studies. This will be explored in a year with average climatic conditions (regular rainfall). 2016 was particularly dry which historically decreases enterotoxemia deaths in crias. This also results in poor body condition in pregnant and nursing females which adversely affects cria development and growth and results in death due to cold weather exposure from malnutrition. Ten field necropsies were performed which served to diagnose the causes of mortality in those crias; six disease outbreaks were controlled decreasing cria mortality in the communities.

Causes of cria mortality in neonatal alpacas: 2015-2016 birthing season:

Community	Total Cria Mortality %	Enterotoxemia %	Multifactorial Diarrhea %	Pneumonia %	Predation (foxes) %	Hypothermia Starvation %
1	40	30	20	20	15	15
2	20	0	50	10	30	10
3	25	0	40	20	20	20
4	30	0	60	20	20	20
5	15	0	-	10 with diarrhea	40	30

B. Nunoa Project Alpaca Work- Puno- July 15- 20, 2016

A team led by Dr. Steve Purdy consisting of Dr. Diaz, US veterinary students Amanda Cormier from Minnesota and Ali Bush from Colorado State, and US prevet students Joe Wong, Katie Flanagan, and Peter McGinn worked in Puno with the 5 communities during July 2016. The goal was to evaluate all females exposed to the 13 superior Nunoa Project males used by farmers in 2016. The results of the work are summarized in the table below.

Community	Number of females examined	Pregnancy Rate	Breeding Problems Identified	Reported Cria Mortality Rate	Reported Causes of Cria Mortality
1	62	68%	1. Outside male inserted right after NP male was removed 2. Breedings and cria births not recorded	25%	Cold
2	77	90%	1. Some ear tags lost and not replaced. 2. Some animals could not be seen as they reside 5-6 hours walking time from any passable road.	15%	Cold, diarrhea
3 – Program Females	22	73%	3 outside males were left in with a NP male	unknown	unknown
3 - Non Program Females	63	90%	A poor quality male was being used for breeding	48% overall in the community	Cold, enterotoxemia (not well vaccinated)
4	75	65%	Nothing specific	20%	unknown
5	44	61%	1. Only 1 month exposure to NP male in 1 herd 2. 2 months in another herd (females were not available for examination)	low	unknown



Students performing ultrasound pregnancy examinations under a tarp in Pucara.



Dr. Diaz and students Joe Wong and Peter McGinn working with a farm family in Pucara.

C. December 2016 Nunoa Project Alpaca Work

The Nunoa Project veterinary team of Dr. Steve Purdy, Dr. Gerardo Diaz from Lima, Dr. Andrea Torres from Colorado, and fourth year vet students Heather Houser and Gaby Villanueva from Tufts, Mallory Sczygelski from Illinois, and Resa McLellan from Pennsylvania worked in the Department of Puno near Pucara. The team performed health and pregnancy evaluations on alpacas in the five communities with which we are involved. They worked with four new farmers and helped them to select breeding females for use with the superior Nunoa Project males for the 2016-2017 breeding

season. In addition they treated medical conditions in individual animals and responded to farmers' animal health concerns.

Community	Farmer	Number of Females Examined	Pregnancy Rate ¹	Breeding Management	Findings
1	A	37 (most 2-4 years old)	62%	1. Outside male inserted right after NP male was removed; 2. breedings and cria births not recorded	2 abortions (June and September) 5 fecals collected from 1 cria and 4 adults ²
	B	5 (only checked females where farmer was unsure of pregnancy status)	100%	120 females continuously exposed to 2 males	15 fecals collected on animals < 1 year old ²
	C	8 (only checked females where farmer was unsure of pregnancy status)	75%	not reported	only requested BCS and pregnancy check
2	A (new farmer)	15 (new NP tags applied)	80%	1. 1 male exposed all year- culled August 2016 due to age 2. Will use 1 NP macho-may share him with a neighbor.	1 colored male with chronic cud impaction
	B	33	57%	Turned females out with own males after NP removed	5 abortions in July
	C (new farmer)	17 (new NP tags applied)	76%	Suri male in with Huacayas and Suris full time (will be removed)	
3	community herd	186 (39 exposed to 2 NP males; 147 exposed to other males)	87% (2 NP males); 58% (other males)	1. Controlled breedings for NP males 2. want 4 NP Huacaya males for 2017	15 abortions out of 200 females (7.5%) in July-September
4	A	26	76%	Males in with herd full time	High cria death rate- distended abdomen, fever, yellow intestines
	B (new farmer)	20 (new NP tags applied)	75%	Multiple males in with herd full time	
	C	21	81%	2 males in full time after NP male removed	
	D	26	84%	not reported	
	E (new farmer)	20 (new NP tags applied)	75%	1 male in with herd full time	
5	A	104	71%	Wants to use multiple NP males	6 abortions July-September

December 2016 Alpaca Findings:

1. ¹Fecal Testing Results

- a. 2 hour flotation in SG 1.33 sugar solution
 - b. Parasite eggs found in all age animals- *Nematodirus*, *E. mac*, *Monezia*, strongyles, *Trichuris*, and small coccidia
 - c. No abnormal stool in any animals
 - d. Body Condition Scores 1-4, primarily 3
 - e. Range 0- 148 per gram of feces, with most <10
 - f. **Conclusion: No need to deworm these animals**
2. ² *Pregnancies* were checked first by palpation/ballottement and then by transabdominal ultrasound if negative.
 3. *Body condition score* of animals was normal averaging 2.5 out of 5.
 4. *Vaccination for enterotoxemia*- some farmers are electing not to vaccinate this birthing/breeding season
 5. *Record keeping*- not catching on fast but we still suggest it to each farmer

D. Conclusions and Future Plans for the Nunoa Project Peruvian Alpaca Project:

1. Beginning objectives were fulfilled, with the main shortcoming being occasional ineffective coordination with producers due mostly to problems with telephone communication, poor access to the communities during inclement weather, and occasionally multiple community projects occurring during previously scheduled project time.
2. All participants do not follow guidelines as agreed. This is not a surprise and is normal anywhere. Harsh living conditions for the farmers of Puno add to the difficulty. Farmers do want to improve based on their expressed desires and we are making slow, but positive progress.
3. The enterotoxemia vaccination program in 2016 started in October and the breeding season was started in mid-December 2016, since by field experience the birthing season in these communities starts earlier than was reported initially. Some farmers are electing not to vaccinate this year due to cost considerations.
4. We continue to emphasize the need to implement the use of breeding and birthing records, as communities already have identified most females who serve as dams. We encourage farmers to start ear tagging crias born to program females so they can be evaluated during our work visit in July 2017. Some farmers request our exam results.
5. We continue to emphasize goals of controlled breeding programs. Some farmers seem not to understand the reasoning for keeping males and females in controlled groups so males are not overloaded. Other farmers do not have enough herders or any fences to keep animals separated. They may not be able to be helped in the short term but we are working with them. Hopefully when farmers see the crias from NP machos they will understand more the goals.
6. Community technicians were not involved in our July or December work in all communities. We continue to try to get community members involved with the work we do.
7. It is important that we continue to explain the hands on work to farmers before we start and the results after we are done. We also continue to ask for their input regarding problems they have. This is all part of the trust we need to continue to cultivate with the communities.
8. Cold weather has severe consequences for cria mortality and body condition score of all animals. Portable shelters for crias are starting to be used for them when there is snow or rain to help lower mortality rates.
9. Some farmers understand the value of bringing in new genetics to their herds to improve production of fiber and improve pregnancy rates. Farmers want to purchase new breeding males. NP has offered to help them to select the animals.
10. We expect that the quality of the new crias sired by our superior males which are being born now through March 2017 will have big impact on farmers' choices of future breeding males and programs.

II. Peruvian Work, Improvement of Llama Production and Health

This work involves presenting training seminars and visiting farmers in association with a project in Urubamba called Llama Pack Project (www.llamapackproject.com). Some herds are very remote and equipment is carried up to the herd sites from the end of vehicle access roads. July 2016 were the first contacts with Macao and Quishuarani farmers along with the Llama Pack Project staff. They are just getting started with their project to improve llama health and to use

llamas as pack animals in the Sacred Valley near Cusco. Our role is to evaluate their animals for body condition score, fertility, and suitability for packing, and to determine what their health problems are to explore possible solutions.

A. Nunoa Project Llama Work- Cusco, July 2016

A team led by Dr. Steve Purdy consisting of Dr. Diaz, US veterinary students Amanda Cormier from Minnesota and Ali Bush from Colorado State, and US prevet students Joe Wong, Katie Flanagan, and Peter McGinn.



Dr. Gerardo Diaz and students Katie Flanagan and Peter McGinn working with llamas in Department of Cusco.

Llama Farmers Visited July 2016:

Farmer	No. Machos	No. Cryptorchids*	No. Geldings	No. Hembras	No. Crias	Total No. In Herd	Pregnancy Rate
A (Urubamba)	3	1 (left)	2	9	0	14	67%
B (Urubamba)	2	0	16	20 (not seen)	2	40	7-8 /20 per year
Farmer C (Maucau)	10	1 (right)	0	29	3	39	15/26 = 58%
Farmer D (Maucau)	3	1 (right)	0	14 llamas	0	17	29%
Farmers E and F (Quishuarani)	15	4 (1 left; 3 right)	13	0	0	75	males only
Farmer G (Quishuarani)	2	1 (right)	16	0	0	22	males only

*Cryptorchidism refers to 1 or both testicles not descended into the normal location in the scrotum. This adversely affects sperm production from the affected testicle.

Problems Noted during July 2016 Visit:

Farmer	Findings	Solutions
A (Urubamba)	2 Crias killed by pumas 2 animals died of liver fluke infection Evaluated animals for packing	Fecal testing and treatment of flukes as needed Keep animals away from contaminated areas Concentrate breeding of larger Kara llamas with 75-80# max cargo weight
B (Urubamba)	Inbreeding seen with gopher ears Need halter training	Introduce other males; halter training ; fecal testing to check for liver flukes
Farmer C (Maucau)	Many males in with females; suspected liver fluke problem	Castrate most of males; fecal testing for liver flukes
Farmer D (Maucau)	29% pregnancy rate Possible liver fluke problem	Need new machos fecal testing for liver flukes
Farmers E and F (Quishuarani)	BCS good; many large llamas Possible liver fluke problem	fecal testing for liver flukes
Farmer G (Quishuarani)	BCS good; large llamas Possible liver fluke problem	fecal testing for liver flukes

Seminars presented to llama producers:

1. To Llama Pack Project Staff and NP Veterinary Team
 - a. Dr. Gerardo Diaz- Introduction to South American Camelids- historical perspective, anatomy, nutrition, behavior, reproduction, health, common misconceptions
 - b. Dr. Steve Purdy- Nunoa Project work with alpacas in Puno and llamas in Cusco- reproduction improvement program, enterotoxemia vaccination program, breeding animal evaluations, pregnancy examinations, responding to producers' concerns
 - c. Alejandra Arias-Stella- goals and work of Llama Backpacker, collaboration with Nunoa Project and CONOPA, community work with llama farmers
2. To approximately 30 Llama Farmers at Quishuarani-
 - a. Dr. Gerardo Diaz- Health in South American Camelids- cria diseases (enterotoxemia, pneumonia, coccidiosis, diarrhea); adult diseases (conjunctivitis, otitis, osteomyelitis, mange, lice, gastrointestinal parasites including liver flukes (*Fasciola hepatica*), hydatid disease, Sarcocystis, alpaca fever



Dr. Gerardo Diaz presenting a seminar to llama producers about diseases of llamas and alpacas.

III. Nunoa Project Llama Work, Cusco, November and December 2016

The Nunoa Project veterinary team of Dr. Steve Purdy, Dr. Andrea Torres from Colorado, and fourth year vet students Heather Houser and Gaby Villanueva from Tufts, Mallory Sczygelski from Illinois, and Resa McLellan from Pennsylvania worked near Urubamba Peru. They performed health and pregnancy evaluations on llamas and taught halter training in association with the work of the Llama Pack Project.

Farmer	No. Machos	No. Cryptorchids	No. Geldings	No. Hembras	No. Crias	Total No. In Herd	Pregnancy Rate
A (Urubamba)	3	1 (left)	2	12	0	17	67%
B (remote site in the mountains above Urubamba)	4	1 (right)	16	23	1	44	47%

General Suggestions for the Llama Project:

1. *Low pregnancy rates* suggest poor quality males and/or females. This needs correction if the farmers are trying to get more crias.
2. The *equine fecal contamination* problem on trails in Quishuarani and Urubamba which is also spreading into adjacent streams is obvious.
 - a. Using llamas would eliminate that issue by the nature of their defecation practices.
 - b. Some of the mules and hoes seen were in poor condition; most were OK.
 - c. Using llamas would also lessen trail erosion as compared to using hooved animals.
3. *The problem of liver fluke disease in llama herds needs further investigation and solutions*
 - a. Fecal examinations should be performed on herds to determine the extent of the problem
 - b. A combination prevention and treatment plan can then be formulated involving:
 - i. Medical treatment as needed in some cases
 - ii. Prevention of exposure to snails carrying the *Fasciola* infection which they transfer to plants which the llamas then eat
 - iii. A survey of the drinking locations for the herds should be carried out now
 - 1) Animals should be kept away from ponds and other standing water areas likely to be contaminated with flukes
 - 2) Sand or stones could be used in specified drinking areas along with removal of the plants which carry the infection
4. These items are what the Llama Pack Project has asked us to help with in addition to any animal health issues we discover.

IV. US Work- North American Camelid Studies Program

The goals of the program are to train future and current veterinarians and animal scientists and alpaca farmers in practical subjects related to animal health, husbandry, and reproduction. This is accomplished with our teaching herd of 30 alpacas and 10 donkeys and visits to local alpaca and llama producers. Students are exposed to the alpaca industry at regional shows. Dr. Purdy provides consultation services to veterinarians and alpaca owners. He also speaks at regional and international conferences on a wide variety of subjects and frequently provides training to veterinary students at their home universities.

A. Undergraduate Animal Science/Preveterinary Courses:

1. Camelid Management- 30 alpacas and 5 llamas at the teaching farm
2. Alpaca and Donkey Reproduction- 10 male and 10 female alpacas; 1 male and five female donkeys
3. hands on interactive learning in small groups
4. development of problem solving skills
5. **More than 60 students who have taken these courses have been admitted to and/or graduated from veterinary or another graduate school. These are the camelid vets and researchers for our alpacas and llamas.**

B. Practical Research with alpacas and donkeys:

1. breeding behavior
2. semen collection and evaluation
3. reproductive ultrasound during breeding and pregnancy
4. teaches problem solving, investigative skills, and students gain confidence while learning new diagnostic techniques
5. examples of ongoing research projects:
 - a. incidence of twinning in alpacas
 - b. effect of age of female alpacas on incidence of twins
 - c. donkey semen characteristics during breeding periods
 - d. early embryonic death in alpacas and donkeys
 - e. comparison of semen characteristics in alpacas by male age and over time
 - f. breeding behavior of donkey and alpaca males and females

C. Education for Veterinarians, Owners, and Students:

1. **6 day Intensive Camelid Practice Courses** are offered in June each year covering the following topics:
 - a. Camelid behavior, husbandry, and herd health
 - b. Reproduction and birthing
 - c. Dentistry
 - d. Neonatology
 - e. Nutrition
 - f. Infectious diseases
 - g. Dermatology
 - h. A combination of interactive classroom instruction and hands on work with the NACSP teaching herd and those of local alpaca producers
2. **Producer seminars** at alpaca shows and farms are provided on similar topics

Past NACSP student and NP Peru volunteer and current Purdue University veterinary student Nicole Rapa working with students during the Alpaca and Donkey Reproduction course





NACSP preveterinary student Vanessa Silvia analyzing alpaca semen collected after a breeding

Quotes from students who volunteered in Peru and took courses in the US:

1. Peter McGinn- prevet NACSP student UMass Amherst; Peru volunteer 2016

“In college I have taken a number of courses, had countless professors, and read thousands of pages of text, but none compare to the learning I did in Peru. Peru taught me that education isn’t about just presenting new information, it’s not about creating unique visuals to explain an idea, and it doesn’t need to be done in a classroom. Education is a conversation, a dialogue between the teacher and the learner. Just as we hoped to teach the Peruvians about preventative medicine and keeping records, they taught us about taking each day as it is, and remembering to laugh even when life gets hard. Peru taught me the value of doing the best you can in each moment. Often times we had to take a step back and think, “Which animals can we actually and effectively treat, and how can we encourage the Peruvians to take steps so that they didn’t arrive at this situation again”. Peru taught me that life is unbelievably fragile, as death was a common place in the highlands, but also taught me that even in death, we must continue to look for reasons to smile. If these people could smile in the face of everything then so to could I.”

2. Alison Bush- veterinary student Colorado State University

“The North American Camelid Studies Program was a great opportunity to learn more about camelid medicine and various practical techniques necessary for camelid herd health. Though we learn some information about alpacas and llamas in veterinary school, we do not learn enough to be confident in our camelid examinations. Dr. Steven Purdy was a great mentor for that week. Hearing stories from his career about different cases, what’s worked what hasn’t worked, and his experience working with these animals was more beneficial than a lecture by a professor who has limited experience working with these animals. In addition, the hands-on portion of the course was extremely beneficial. I’m glad I decided to take this course this summer, and I feel more confident working with alpacas and llamas because of it. The trip with Dr. Purdy and The Nuñoa Project to Peru was the most humbling experience of my life. We worked with five alpaca herding communities near Pucara. It was interesting to see the condition of the alpacas and the hardships both the animals and farmers go through in the Alit Plano. It was an honor to join The Nuñoa Project to help to improve these herds and progress the alpaca industry in Peru. The work we did was extremely meaningful, and I went to bed each night feeling like I made a difference in the farmers’ lives.”

3. Joe Wong- prevet student, NACSP graduate and Peru volunteer 2016

“I realized that in order for Peruvian farmers to trust us, it takes patience and constant exposure to our ideas. After seeing long-term results, I believe these farmers will have more incentive to practice better management. I now understand why Dr. Purdy devotes his time to travel and give back to these people twice a year; our help shows

these farmers that we care and are committed to improving their livelihood. Although it was physically and mentally demanding, I was happy waking up at Five AM, driving up mountains, and hiking to these farms, as this was one of the most rewarding experiences of my life. The views were breathtaking at an elevation of 14,000 feet, but more meaningful to me were the people that lived there every day. Getting to know these farmers and learning about their culture made everything worthwhile. I gained a deep respect for these people as they work extremely hard, yet never complain and are full of life. I am thankful to have met such wonderful people and work with a team of motivated and dedicated individuals. Overall, my trip to Peru has positively changed my outlook on life and the veterinary profession. I have reaffirmed my aspirations of becoming a veterinarian and have learned that this career is much more than being a doctor for animals; it is a lifestyle devoted to helping those in need in our community. I have never considered a career in international agriculture, but my involvement with the Nuñoa Project pushes to me to come back to Peru as a veterinarian and help these farmers. With enough time, diligence, and support, I am confident we will make a difference in these farmers' lives."

4. Katie Flanagan- prevet student, NACSP graduate and Peru volunteer 2016

"When I began my education at the University of Massachusetts studying animal science, I heard about Dr. Purdy's program with alpacas, which was highly recommended by his students. The classes offered by Nuñoa Project not only gave me knowledge and experience that will serve me well in my future working with animals, but also helped immensely with the management of my own herd. Where I live there are limited options for alpaca veterinarians, so knowing about different ailments common in alpacas has been incredibly useful. I enjoyed working with both the alpacas and donkeys equally, although the two species are very different. I found the most interesting part of the classes to be the reproductive work. I practiced several techniques for reproductive success, including ultrasound and semen analysis. With the knowledge I acquired during my years in college, I felt confident in my ability to help alpaca farmers elsewhere. I am so fortunate to have been given the opportunity to travel to Peru to do this work. The beauty of this country is breathtaking and I especially enjoyed experiencing the culture which is so different from our own here in the United States. Being able to help both the animals and farmers in the communities we visited was a rewarding experience because these animals are their livelihood. Giving advice on how to improve their genetics means more than winning a blue ribbon in Peru. To these farmers, it contributes to their survival. This trip was eye opening because I saw a different perspective of the alpaca industry in the place where it originated. Additionally, there was so much to learn from the brilliant doctors and fellow students with whom I travelled. I am so grateful for the incomparable experience Nuñoa Project has given me. It is a wonderful program that is continually improving. I would recommend getting involved with the Nuñoa Project to anyone interested in animals, veterinary medicine and helping people."

5. Amanda Cormier- veterinary student University of Minnesota

"This was the summer of camelids and I couldn't have enjoyed it more or learned as much as I did without the help of Dr. Purdy and the Nuñoa Project. I was first exposed to camelids during my first year at vet school through our Small Ruminant and Camelid Club. I figured out very quickly that I want to spend my life working with camelids. Unfortunately our curriculum only includes about two lectures a semester on camelids, so that is where Dr. Purdy comes in. My summer started with a trip to Massachusetts to take the North American Camelid Studies Program Intensive Camelid Practice Course. Through this class I not only learned common practices in camelid medicine, but I also learned how to handle and work with Dr. Purdy's herd of alpacas. Each day we would have a lecture and then go to Dr. Purdy's farm to implement what he taught us. This included a lot more hands on work than I would have gotten even if I did learn about camelids in school. I now feel much more comfortable handling and treating common ailments. A month later, the summer got even better with a trip to Peru. In Peru we worked with both llamas and alpacas doing ultrasound pregnancy exams, male reproductive exams, cleaning eyes, and treating mange. On top of that, we worked closely with the farmers to help improve their herds in order to make life better for them. Through Gerardo, the incredible Peruvian vet who worked with us and translated everything, we learned about the culture and lifestyle of the farmers and then worked every day to assist them. Just like the saying "If you give a man a fish he eats for a day, if you teach a man to fish he eats for a life time", Nuñoa Project is in it for the long haul. Improving breeding stock and educating the public takes time and I feel privileged to have been able to help in a small piece of that goal. I'm not quite ready to go out into practice, after all I still have two more years of school, but thanks to Dr. Purdy I am that much closer to reaching that goal. I hope that after I become a world-renowned camelid veterinarian (ok that might be a stretch, but at least happily treating camelids in my area), I will have the

opportunity to return to Peru with the Nuñoa Project. When I do that, I can't wait to see how much the herds have improved in fiber quality and body condition and I will be so proud of this incredible organization for making that happen."

WE NEED YOUR HELP

***Our work is totally funded by private donations
which we have to raise each year.***

***If you are interested in more information or in making a
tax deductible donation please contact
Steve Purdy at srpurdy@nunoaproject.org or 413-658-7718.***

***Donations can also be made through our website at
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