

# *The Journal of RMLA*



# Welcome to RMLA!

--- Mission Statement ---

The mission of the Association shall be to educate the members and the public as to the breeding, raising, care and use of llamas and alpacas.

## RMLA Board of Directors



**President**  
Lougene Baird  
Cottonwood AZ  
808-747-5023  
[lougenebaird@outlook.com](mailto:lougenebaird@outlook.com)



**Vice President**  
Nancy Wilson  
Camp Verde AZ  
928-220-5553  
[spinllama@msn.com](mailto:spinllama@msn.com)



**Secretary**  
Sandy Schilling  
Chino Valley AZ  
602-403-8166  
[Sschilling19151@gmail.com](mailto:Sschilling19151@gmail.com)



**Treasurer**  
Geri Rutledge  
Waco NE  
402-366-9304  
[buckshollowalpacas@icloud.com](mailto:buckshollowalpacas@icloud.com)



**At-Large**  
Linda Hayes  
Prescott AZ  
970-379-4576  
[llamas@skybeam.com](mailto:llamas@skybeam.com)

## Chairpersons, Active Committees

### Bookstore

Manager: Open  
RMLAbookstore@gmail.com  
Bookkeeper: **Marilyn Arnold**  
Liaison Lougene Baird

### Facebook

**Sandy Schilling**  
RMLAmembershipchair@gmail.com  
Liaison Lougene Baird

### E-Blasts

**Sandy Schilling**  
602-403-8166  
RMLAebblast@gmail.com  
Liaison Lougene Baird

### Education/Events/Marketing

**Mary Wickman**  
719-651-8871  
Mwickman1@gmail.com  
Liaison Linda Hayes

### Fiber

**Kathy Stanko**  
Open  
rmlafiber@gmail.com  
Liaison Nancy Wilson

### Finance

**Marilyn Arnold**  
303-841-5126  
rmlaaccounting@yahoo.com  
Liaison Geri Rutledge

### The Journal

**Kathy Stanko**  
970-256-7716  
rmlaeditor@gmail.com  
Liaison Nancy Wilson

### Library

**Sandy Lockwood**  
303-838-9554  
Rmlalibrary3@gmail.com  
Liaison Nancy Wilson

### Membership

**Sandy Schilling**  
602-403-8166  
RMLAmembershipchair@gmail.com  
Liaison Lougene Baird

### Nominations & Elections

**Christina Abel**  
620-626-8743  
luckyonyx81@gmail.com  
Liaison Linda Hayes

### Pack

**OPEN**  
Liaison Nancy Wilson

### Research

**Ron Baird**  
808-747-5975  
ronbaird1942@outlook.com  
Liaison Geri Rutledge

### Website

Content: **Kathy Stanko**  
970-256-7716  
Rmlawebsite@gmail.com  
Membership: **Sandy Schilling**  
602-403-8166  
RMLAmembershipchair@gmail.com  
Liaison Lougene Baird

### Youth, 4-H, FFA

**Ron Cosner**  
712-541-8938  
rmlayouthinfo@gmail.com  
Liaison Sandy Schilling

## About the Journal

The Journal of RMLA<sup>®</sup> is a quarterly publication of the Rocky Mountain Llama and Alpaca Association (RMLA). The RMLA Journal Committee and the Board of Directors reserve the right to select and edit all articles and advertisements submitted.

The information in The Journal is not intended to be a substitute for qualified professional advice. Readers are encouraged to consult with their own veterinarian, accountant or attorney regarding any questions concerning their animals or business operations.

RMLA is not responsible for any losses resulting from readers' failure to heed this caution. The views expressed by the authors of articles are not necessarily those of the Rocky Mountain Llama and Alpaca Association, Inc., its officers, directors or members.

**Reproduction of Journal Articles: Articles may be reproduced (unless otherwise noted) after obtaining written permission from the author. The author and The Journal of RMLA must be given credit for the reproduction of the original work.**

## Table of Contents

RMLA Board of Directors.....	2
Chairpersons, Active Committees .....	3
About the Journal.....	3
From The Editor.....	5
Journal Submission Dates, Ad Rates & Specifications .....	5
President’s Message .....	6
New Chair for Youth, 4-H, FFA.....	8
Welcome New Members! .....	9
Upcoming RMLA Events .....	9
Flagstaff Wool and Fiber Festival .....	10
Signs You May Have A Problem AND How To Prevent Problems! .....	11
Ask The Vet – Camelid Ulcers .....	13
Llama & Alpaca Facts You Should Know.....	15
Restoring Our Pastures.....	16
10 Tips For Preparing Your Pasture For Grazing .....	19
When Did The Estes Park Wool Market Begin? .....	20
The Estes Park Wool Market Returns .....	20
<a href="https://howtocatchallama.com/">https://howtocatchallama.com/</a> .....	25
Merry Christmas and Ho-Ho-Ho .....	26
Wooly Tidbits.....	26
Wunsapana Llamas 4-H Club .....	27
Youth Member Shines .....	29
Control Of Lice In Alpacas .....	30
A Trip to the Fiber Mill .....	36
Llama Fiber: A Realm of Possibilities.....	39

## Advertisers in this Issue

Mazuri.....	22
elZorro Colorado Alpacas .....	24
Rocky Mountain Llamas.....	24
Antelope Alpacas Fiber Arts Center .....	24
Chris Switzer, Weaver .....	24
Southwest Llamas Rescue.....	25
RMLA Publications .....	38

**Cover Photo from the Wunsapana Llamas 4-H Club practicing with packs.** Clockwise: Reese Huntsman and River, Emma Hunt and Storm, hiking on a trail, Paige Huntsman with Winter.

**Back Photo** courtesy Geri Rutledge, 2022 Estes Park Wool Market.

## From The Editor

Kathy Stanko, Editor, [rmlaeditor@gmail.com](mailto:rmlaeditor@gmail.com)

Welcome to the Fall Journal of the RMLA. This issue is jam-packed with educational articles from near and far. Among the articles on lice, ulcers, vital signs, pasture health, fiber, events and training you will surely find something of value.

Please read the President’s Message. There is a lot of exciting news happening within the Board and at RMLA. RMLA is vigorously going into the future guided by its Mission Statement.

With Ron Cosner as the new Youth Chair, the RMLA Youth are back. Ron is uniquely qualified to lead the youth programs. All members of a 4-H club in New York have joined RMLA. These kids are busy and have shared their stories with all of us.

Now what is missing? We have no articles about hiking and packing in this issue. I know our members are out there, celebrating the return to the trails and the backcountry with their llamas and alpacas. Where are you going; how do you plan your adventures; what do you take with you? Each of these topics would be great articles for the Journal. How about it? We would all love to hear from you.

Thanks for reading your Journal. Have a safe and fun fall.



## Journal Submission Dates, Ad Rates & Specifications

Issue	Submission Deadline	Publication Date
Spring	February 28	March 31
Summer	May 31	June 30
Fall	August 31	September 30
Winter	November 30	December 31

Ad Type	Width x Height	Member Rate	Non-Member
Business Card	3.5"x2"	\$ 7	\$ 15
¼ page horiz.	7.5"x2"	\$ 12	\$ 24
¼ page vert.	3.5"x4.5"	\$ 12	\$ 24
Half Page	7.5" x 5"	\$ 24	\$ 48
Full Page	7.5"x 10"	\$ 39	\$ 78

Ad rates are quoted per issue. Lock in the current rate by purchasing an ad for four consecutive issues and receive a **5<sup>th</sup> ad for free**. You may change your ad once during the year.

### To submit articles, ads or photo:

- All submissions go to [rmlaeditor@gmail.com](mailto:rmlaeditor@gmail.com)
- Documents in MS Word format
- Camera ready ads as a pdf or jpg file. **NOTE:** What you send is what we publish.
- Images/photos as .jpeg (.jpg) or .tiff files. Photo from a camera or phone are sufficient. Please check the background and lighting. RMLA will only crop for fit and/or enhance the lighting.

### Instructions for advertising payment:

You may pay for your ad on the RMLA website using a credit card. Or, send your check, payable to RMLA:

RMLA  
11483 Ponderosa Ln.  
Franktown CO 80116  
303-841-5126

Payment and ad copy must be received prior to submission deadline. See the table above for dates.

## President's Message

Wow! What a wonderful summer for RMLA and our members. We are hearing that folks are getting out again with their families and lamas and enjoying time together. We look forward to a few articles or photo articles for the next Journal! A photo with a paragraph sized caption is just perfect to tell a great story. Send them to Kathy at [rmlaeditor@gmail.com](mailto:rmlaeditor@gmail.com).

Wow again! RMLA continues to grow as we share our educational resources. The membership is now up to 180 and 13 of those are RMLA Youth members. This is just wonderful; you will enjoy reading about our youth and their activities within this issue.

Speaking of youth, we are very excited that Ron Cosner, a new RMLA member from Hutchinson, MN, has volunteered to fill the Youth Committee Chair opening. Ron has many years of experience working with youth, and we look forward to his help for youth everywhere; RMLA has had an amazing number of inquiries from youth leaders across the nation about the Youth Manual and the Youth Awards Program. The YM publication is helping leaders help their youth train and care for their animals.

Fall brings changes to our lives. Summer activities have slowed, kids are back in school, the weather becomes tolerable. Here at RMLA we experience the departure of our Directors who have worked diligently for your organization and have completed their term. After the close of the Annual General Meeting, newly elected Directors take their seats on the Board to serve the membership. For those of you new to RMLA, the Board then elects officers.

After the close of the Annual General Meeting, we will bid farewell to two very dedicated ladies, Linda Hayes and Geri Rutledge. Serving on the Board really is wonderful, but there is a transition when, suddenly, a retiring director does not have to be too concerned on a daily basis as to where RMLA is headed next!

Let's read about what these two ladies have planned to do "after RMLA" and then we will introduce you to the two ladies who will begin their three-year term. Each one of them have written their own story to share with you.

Stay well, stay happy and volunteer! Thank you, Lougene

**Linda Hayes about her future.** I joined RMLA when I moved to Colorado from Texas in 1999. It was cooler for the llamas in Colorado. I decided I was getting too old to be a full-time llama rancher in 2017 so I sold the ranch and moved to Arizona. I brought my 5 favorite old gals with me. As they were dying off I bought a Public Relations llama at the Gathering as I still enjoyed going to schools, parades and etc. When Covid hit all that stopped and llamas weren't as much fun anymore. Plus keeping up the Arizona ranch was hard on an old single lady so I decided to move to a townhouse. I had 2 llamas left - the PR gelding and an older female. I gave them to a friend from Colorado who had just moved to the San Juan Islands in Washington. The llamas are in heaven and I miss them and all my llama owner friends.



When I moved to the townhouse, I had a big garage sale and met some new llama people because I advertised all my llama stuff. One, Sandy Schilling, became a good friend. She bought the horse trailer that I had owned for 50 years, plus most of my other stuff like a chute and fans etc. I talked her into joining RMLA and she is now a director and one of our hardest working and most involved members.

Llamas were my life for 30 years and I would not trade any of it for a billion dollars. I will continue to be as active as I can by helping with llama events, the Journal, and llama friends. Thanks to RMLA for being a great part of my life.

I am keeping busy by being a part of the local theater group, dancing, and playing Pickleball. I just released a book called *Winter Love a Guide to Senior Dating*. It sells on Amazon as a soft cover or ebook. The Lifelong Learning Division of Yavapai College is having me do a class based on the book. It will be six interactive classes on how to meet other single seniors, online dating, using social media to find events to go to and so on. It will be a hoot and I'm looking forward to it. Keeping busy is keeping me young. But I do miss the llama world.

**Geri Rutledge about her future.** Well, I've served on the RMLA board forever. Things change! The 4-H kids all grew up, now we have second generation. I've hired several former RMLA youth to work for me at Tractor Supply in York, Nebraska, where I have just completed five years as Store Manager. I am also the Manager of TSC District Learning Centers and training all new management. My team is a core of 20 people who help me go out and recover stores when something goes south for whatever reason.



I continue as President for the Kansas Golden Plains Llama Association. And now I will be volunteering more on the local front in York County with the school board where an All Ag facility is being built and year round learning with college credits is under development.

We continue to raise llamas, alpacas, paco vicuñas, chickens, goats, and a cow named Pork Chop. I have taken some rescues and will be nurturing them back to health allegedly to rehome, but Jim knows how that goes; it takes me a long time to find anyone I trust!

Marshal is 29 now, living in Lincoln, Nebraska, but making weekly trips to the farm to help us recover from storm damages. We were hit by a tornado F2, and it took out lots of trees and three shelters. But all the animals and people are fine. I've lost five windshields on four vehicles to the storms! I'm the #1 customer at our local body shop.

So here we go headed into state fairs' time, ten days in Nebraska and 10 days in Kansas. I guess some things will never change...including my love for these adorable pets.

### Meet Our New Board Members

**Linda Schlenker** My husband and I live in Scottsdale, Arizona with our four alpacas, two donkeys, a dog, a cat, and a rescued desert tortoise. We have been married for over 25 years and after our kids were successfully launched and moved out, we decided to get out of the city. I have always been captivated by alpacas and when we moved out of Phoenix into a property that would accommodate alpacas last year, we were finally able to add them to our family. As a new owner, the information I have gotten on how to care for our alpacas has been priceless, and I would love to give back even a little of what I have gotten.



I am happy to be a representative of all camelids and work as a director to further the RMLA mission statement as I have been the grateful recipient of this community's support this past year.

**L'illette Vasquez, Kerrville TX** This is a nutshell view of my 22+ years with camelids:

- January 2000: Bought my first llamas--a randy stud and his pregnant, pissy consort.
- August 2003: Ten days after my 50<sup>th</sup> birthday, moved to Colorado to live and work at Rocky Mountain Llamas for Bobra Goldsmith.
- June 2011: Again, loaded cats, dogs, and llamas, and drove to California to manage 925 Sterling Alpacas.
- July 2020: returned to Texas where I am now a "resident volunteer" at Southwest Llama Rescue's Kerrville sanctuary.



In the years since my life took that sharp turn from technical communications to all things llama, I have been consistently active in camelid rescue; served on llama and alpaca organization BODs; published articles and edited newsletters; packed, bred and shown; trained llamas, alpacas, new owners and 4-H youths; and learned from the very best in our communities. Every day, I am grateful for the opportunity to delight in, contribute to, and share the wonders of this most amazing world of camelids and the phenomenal people who love them. I am truly honored to serve on this Board of Directors

**YOUTH, 4-H, FFA**

## **New Chair for Youth, 4-H, FFA**



My name is Ron Cosner; I'm the new Youth Committee Chair. I'm originally from Ohio where our family farm still exists and currently is in the hands of the fourth generation. I grew up on a small farm near Columbus, Ohio. On this farm I raised sheep which was the primary livestock for me for 25 years.

I was in 4-H as a youngster and FFA during my teenage years. After my 18<sup>th</sup> birthday, I was an adviser for one year. While participating in FFA I was on the wool and livestock judging teams and served in various officer roles. Somewhere in those 25 years I began to think about llamas and alpacas and what it would be like to raise them.

At 26 years of age I went to work for what would become the largest dairy production company in the world. In a managerial role with this company, my wife and I traveled from the Canadian border to South Central Florida and then off to the Southwest. We shifted gears and I got into another line of work with egg production which allowed us to come back to the Midwest where we had always wanted to be. We now live in Southwestern Minnesota.

While all this traveling was a great experience, and I learned a lot, it did not allow us to have livestock. Along the way, however, we bred and raised champion show dogs, orchids, and irises. While raising irises as a member of the national



organization, I served in many officer positions. Since coming back to the Midwest, we have been able to have livestock. And we finally added a llama to the group of livestock, but we lost her when she was 23 years old.

While breeding llamas is not our primary objective, we have bred and were blessed with a couple of llama crias. But we are fortunate to have nearby a large llama farm called Carlson's Loveable Lamas where generally there are 50 to 75 llamas on hand. So instead of adding llamas we added alpacas. First we added 2 and then for our anniversary I bought my wife 4 more alpacas. This has led us to where we are now, with a breeding program and 37 alpacas. In addition to the alpacas we also have a llama, horses, a donkey, and egg laying chickens. We have been showing alpacas for about 8 years and really enjoy it.

I wish to thank RMLA for this opportunity to continue growing and learning while also helping others. And I hope I will be able to help the youth of RMLA in a small way. Thank you

## Welcome New Members!

RMLA is always growing! We welcome the following new members:

Therese Conroy, Altamont, NY  
6 Youth, Altamont, NY

### RMLA EVENTS

## Upcoming RMLA Events

By Mary Wickman, Events Chair

**November 11, 2022 Veterans Day Parade. Prescott, AZ.** This year's theme is Vietnam Veterans. Llamas, alpacas, and horses will be marching. All are welcome. Contact Sandra Schilling, [sschilli9151@gmail.com](mailto:sschilli9151@gmail.com) to join the fun.

**December 3, 2022 Prescott Chamber Christmas Parade, Prescott, AZ.** The annual City of Prescott Christmas Parade. We had a great time at last year's parade so we are going for it again. Contact Sandra Schilling, [sschilli9151@gmail.com](mailto:sschilli9151@gmail.com) to join the fun.

**Save the Date: January 6<sup>th</sup>-8<sup>th</sup>, 2023 National Western Stock Show Llama Show, Denver, CO.** Halter, performance & fiber. Alpacas may participate with the llamas in performance. Afternoon with llamas and alpacas. More information when available. Contact Judy Glaser, [judy.glaser@yahoo.com](mailto:judy.glaser@yahoo.com) to help on this great event.

**To plan an event** go to the Events tab on RMLA.COM for the planning packet. If you need help, please contact Mary Wickman, [mwickman1@gmail.com](mailto:mwickman1@gmail.com).

## Flagstaff Wool and Fiber Festival

By Nancy Wilson, Camp Verde, AZ



It was exciting to be at the Flag Wool and Fiber Festival. After a two-year hiatus, it was good to have an in-person event. In addition to a wide variety of fiber vendors, there was a full schedule of workshops. Workshop topics included dyeing (natural dyes, indigo), spinning angora rabbit fiber, weaving (Navajo style tapestry, rigid heddle, and mini tapestry), needle felting, blending techniques, and building your own blending board.

Education is a very important part of the festival. Visitors can see a variety of processes from start to finish through ongoing demonstrations. Topics included eco dyeing, vegetal dyeing, needle felting, basket making, and others. Fiber art guilds display items made by their members.

Local shearer Mick Hofmann was busy shearing sheep, llamas, and alpacas. This is always a popular demonstration for visitors.

A wide variety of fiber-producing animals were represented: several breeds of sheep, llamas, alpacas, musk ox, angora rabbits, a Dromedary camel, and Bactrian camel. There were plenty of things to learn.

I presented two demonstrations: solar dyeing and spinning. For solar dyeing, I had white llama/alpaca/merino wool roving that I dyed in a plastic jar with layers of different dye colors, then a solid color in a glass bowl placed inside a large Ziploc bag, and finally in a larger bowl with the dye applied in stripes across the roving and covered with a glass microwave turntable. I also demonstrated how to solar dye silk hankies. Silk hankies (also called mawata) are the result of softening an intact silk cocoon and stretching it into a square shape using a square picture frame with finishing nails placed along all four edges approximately 1" apart. The hankie can then be stretched into a loop and used for knitting/crocheting or spun into yarn.

For the spinning demonstration I showed the entire process starting with carding wool and spinning with a drop spindle then progressing to a spinning wheel. I talked about the different types of fiber and how to adjust the spinning wheel to make different types of yarn.

The festival sponsors a fiber arts competition, which is judged and then set up for display. There is also a people's choice award. This is a destination event for fiber enthusiasts from around the state. Kudos to a dedicated group of volunteers to put together this event.



Nancy Wilson demonstrating spinning techniques.

## Signs You May Have A Problem AND How To Prevent Problems!

By Marty McGee Bennett, Camelidynamics

Most problematic behavior between camelids and humans begins with a misunderstanding. We assume we know WHY an animal is doing something and respond based on that assumption. It is much safer to act on what you know, not what you think you know!

I have written extensively about this issue and if you are new to camelids I suggest you do some reading. This is a complicated issue. Know too, that my thinking has evolved. I have learned more about behavior and how to shape it in the last 10-15 years. There are a number of articles in the Guild Library as well as posts that update my thinking since I wrote the CAMELID Companion.



**This baby is acting curious but not inappropriately.**

Learn to read camelid body language and understand that llamas and alpacas are not expressing "love" when they encroach upon your personal space. Rather they are asking questions about what is appropriate behavior around two-leggeds. Remember too, you are the source of valuable things like food, water, freedom, access to new pasture. Proximity to you is of value and animals will compete with each other to have access to things of value. So while it is about you — it isn't really about some sort of intrinsic love for you. What follows is a list of interactions that are OK and interactions that are not, along with my explanation of the difference.

### **I am sitting in the grass out in the field:**

A baby comes over and sniffs my feet, this is OK.

A baby walks on my legs and rubs his head on my back, this is NOT OK. Why is the second interaction NOT OK? Because the baby is asking if making physical contact with me is allowable. If I answer with my inaction that it is allowable, as the baby gets bigger he will continue to do the same thing.

### **I am mucking out the barn:**

A baby comes over, watches me for a while, sniffs my rake and wanders off, this is OK.

A baby follows me around, pulls things out of my pocket and stays with me instead of rejoining the herd, this is NOT OK. Why is this NOT OK? I am encouraging the baby to look to me for the kinds of interactions that should be reserved for other camelids. This might become a preoccupation with humans instead of staying with the herd. Reaching into a pocket can easily morph into biting.

### **Visitors hanging out in the pasture:**

A baby or weanling wanders over and stands closely, sniffing gently by reaching out with his or her nose and greeting the newcomers. This is OK.

A baby runs over, skids to a stop, pokes his nose in the face of the newcomer and when the newcomer steps back he OR SHE steps forward. This is NOT OK. I think the difference here is pretty obvious; however, when the baby is quite

tiny it may not be so obvious. Be aware that the behaviors you allow in very young babies are not going to magically go away when the baby gets bigger and the behaviors get bigger too.

### **What NOT to do to change these behaviors:**

Pushing babies or weanlings away is a terrible strategy! They push, you push back and the game is on. Eventually they weigh as much or more than you do! You are teaching the animal to interact physically with you. Is this what you really want?

Yelling, waving your arms around and spitting at your llamas or alpacas might work to get the animal to go away but come on, is this how you want to behave around your animals? I would suggest that the last thing in the world you want to do is compete with a llama or alpaca on their terms. Yelling excites the nervous system and this is the last thing you want. The answer is to close these animals away while you are working in the barn and prevent them from engaging in this behavior.

I know that it is tempting, but it is NOT a good idea to use the kinds of animals that seem to have no boundaries or reluctance to be around people as public relations animals. It is the worst possible job for these animals because you have no control over the public, and the public is NOT going to behave appropriately. You are sending the wrong message to people who do not know about camelids. Most camelids do not act like the family dog. And the family dog could use some protection from the public too!

### **What You CAN Do**

1. Examine your behavior and see what you are doing or have done that gave your animal the impression that you have no personal space. Think about behavior that you may be doing that puts the animals in a position to vie over who gets to be closest to you.
2. If problems occur at feeding time, CHANGE the way you feed. Trying to deal with problematic behavior when you are carrying grain or hay is not only impossible but sends a very mixed message about appropriate proximity to you. It is a version of come here, come here, come here, go away, go away, go away.
3. Most importantly change your mind about the animal's behavior—you have probably enjoyed it in the past and have encouraged inappropriate behavior so look inward and decide to set some boundaries and then be consistent in the changes you make.
4. Embrace NON-physical ways of catching and handling. Cornering, grabbing, and holding to catch and wrestling to trim toenails is the WORST possible way to deal with any camelid and is particularly problematic with camelids that do not seem to have a natural reluctance around people. Forceful handling says, “YES it is ok to be physical with me.” All camelids benefit from non-forceful catching and handling but the kinds of animals that demonstrate a lack of concern about getting physical are particularly at risk for learning dangerous behavior, if you handle them physically.
5. If this is a male baby and the behavior is persistent and problematic, think about gelding and maybe gelding earlier than you might ordinarily do it. I have gelded male alpacas and llamas as early as 6-9 months. My veterinarian thought



**This photo illustrates a nice way to feed...using plates out in an open paddock.)**

the rewards offset the risks—after all other animals dogs, horses, cats, goats, sheep are all gelded early. With this kind of behavioral issue, I think gelding is the safer choice for the longest and happiest life. If you have a young male that is getting physical with you and you want to keep him intact, be aware that this behavior can manifest itself in a dangerous way when:

- You sell the animal to someone who is inexperienced
- When the animal turns three
- When the animal begins breeding

## HEALTH

### Ask The Vet – Camelid Ulcers

**Caitlyn Mullins, DVM, MS.**

Colorado State University Veterinary Teaching Hospital



***How do I know if my llama or alpaca has ulcers? What can I do about it?***

“Ulcers,” more specifically C3 ulcers, are challenging to both diagnose and effectively treat. Ulcers can be a major cause of illness and sometimes even lead to death. Many animal species, including humans, can suffer from gastrointestinal ulceration, though risk factors and principles of treatment can vary widely based on GI anatomy. Based on their unique anatomy, managing gastric ulceration in camelids requires knowledge of the risk factors, clinical signs, diagnostic challenges, and available treatments.

#### **Clinical signs**

In the camelid C3 (the GI structure most analogous to the abomasum in ruminants or the stomach in humans), the region closest to the small intestine secretes hydrochloric acid. It is in this region that ulcers most commonly form, though the first part of the small intestine (duodenum) can also be affected. Ulcers in camelids can have an insidious onset and result in a wide range of clinical signs, many of which are non-specific. Gastric ulceration can result in little to no clinical signs, particularly if the ulcer is shallow or of small size.

However, ulcers often result in noticeable changes in eating, drinking, and/or behavior patterns. The changes may be subtle (example: taking a little longer to eat, developing a pickier appetite] or more pronounced [example: lying down more often, abnormal cush). Gastric ulceration can also result in more significant whole-body effects because of the erosion of the stomach lining. If a significant portion of the C3 is impacted, or if an ulcer penetrates deeply, blood vessels may be affected. When blood begins to leak into the stomach, it is digested in the intestines and the animal produces “melena,” or dark (nearly black), tarry stool. There may also be an underlying anemia if the ulceration is a chronic issue.

In growing animals, poor weight gain and ill-thrift may be noted. In rare and severe circumstances, the ulcer can erode completely through the C3 wall, leading to perforation. This is often a fatal event as the rupture itself rarely results in acute worsening of pain. However, as gastric contents begin to leak into the abdomen, the animal will display an overwhelming immune response that is still often insufficient to prevent diffuse, acute, severe abdominal infection. These signs will develop over the course of several hours to a day, depending on the size of the eroded wall. It is

important to remember that there is a vast range of possible clinical signs that can result from ulceration.

### Risk factors

Unlike in people where stomach infection with *Helicobacter* bacteria is a primary risk factor for ulcer development, ulceration in camelids is not specifically caused by bacterial overgrowth. It is true that stress (that can present in multiple forms) has been linked to gastric ulceration in more species than just alpacas and llamas. In particular, events such as parturition, transport, and weaning can predispose to development of ulcers.

Other illnesses, particularly those which also affect the blood flow to the GI tract or GI tract motility, can prove to be ulcerogenic. These include diseases like septicemia and Clostridiosis, among others. In addition to these individual animal stressors, consider that social interactions can also lead to a significant burden of stress. Therefore, changes in social structures or animal grouping can also be risk factors. Certain medications, particularly steroids or NSAIDs (ex. flunixin meglumine, meloxicam), can reduce adequate blood flow to the C3 which weakens its defenses against stomach acid. While some dietary factors can lead to low gastrointestinal pH, this is more of a concern in affecting the function of the first compartment (C1). In rare situations, cancer in the C3 (or in other parts of the GI tract) can ulcerate.

### Diagnosis

Definitive diagnosis of C3 ulcers is unfortunately not possible. For accurate diagnosis, endoscopy (a camera passed down the esophagus into the GI tract) must be performed to directly visualize the inside of the C3. Unfortunately, reaching the C3 with an endoscope is not possible in camelids due to the complicated path needed to get through the C1 and C2. Ultrasound and radiographs (X-ray) are insensitive to detect ulceration, though they may show free fluid near the C3 in the event of a rupture. Only if the ulcers are severe may you see supporting evidence of ulcers on bloodwork (anemia, low blood protein), but these findings are not specific to ulcers. A combination of history and clinical signs is used to make a presumptive diagnosis of ulcers.

### Treatment

Just as the forestomach (C1, C2, C3) anatomy can make diagnosis challenging, so too does it make treatment difficult. Antacid medications (ex. omeprazole, famotidine) and ulcer-coating medications (sucralfate) that can be given orally to humans will be broken down in the C1 and therefore not make it to the ulcer in C3. Any antacid medication must therefore be given by injection. The most used medication is pantoprazole (related to omeprazole), which can be given by subcutaneous or intravenous injection. The goal of the medication is to decrease acid secretion in the C3 long enough for the normal healing mechanisms to repair the ulcer. Antibiotics may be necessary during the period of treatment to reduce the chances of bacterial absorption into the bloodstream. NSAID's and steroids should be avoided or stopped, if possible.

Response to treatment helps dictate the need for further therapy. In camelids with concurrent illnesses or in whom severe ulceration with blood loss or perforation is suspected, hospitalization is often required. Aggressive therapy (blood transfusion, IV antibiotics, surgery, etc) may be needed. If there are known risk factors or underlying diseases, those should be addressed.



The dark red area at the top is the ulcerated area. The lighter pink is the normal color and appearance.

Gastrointestinal ulceration in camelids can be a challenging disease to diagnose and treat. Some risk factors are known, but camelids without any known predisposing factors can also develop ulcers. Prevention relies on minimizing stressors, feeding an appropriate ration, avoiding excessive use of NSAID's and steroids, and following good husbandry practices to reduce risk of disease. Due to the insidious nature of ulcers and risk for severe complications, it is best to work with your veterinarian if ulcers are suspected.

## HEALTH

## Llama & Alpaca Facts You Should Know

By L'illette Vasquez

Southwest Llama Rescue

Kerrville, TX

### Llama and Alpaca Normal Vital Signs...

- **Heart rate: 60—90 BPM.** Place stethoscope at fleece-free area under elbow.
- **Resting respiratory rate: 10—30 BPM.** Watch for rise and fall of chest/flank area.
- **Temperature: 99.5 - 102F.** (Neonates have a wider temperature range.)

### ...and Physical Examination Parameters

- **Body condition.** Ideally, you should be weighing your animals on a regular schedule. Fiber can hide conditions, so regular hands-on examination is advisable.
- **Conformation.** Pay attention to head and neck carriage. When weak, sick or depressed, the animal may hold its head differently.
- **Ears.** In a normal position, no “airplaning” with ear(s) held to side or drooping, and no odors.
- **Eyes.** Should be wide open and clear, without any squinting or tearing.
- **Gait.** Observe whether your animal is moving normally, without avoiding weight on one limb.
- **Mouth.** Unless the animal has been spitting or near spit spatter, the mouth should be closed, and no drool or swelling.
- **Mucus membranes and capillary refill time.** Non-pigmented areas of the gums should be light pink and moist. When pressed with the fingertip, color should return in one to two seconds.
- **Nose.** Because camelids are obligate nasal breathers, you should observe it breathing normally without unusual flaring of nostrils or sounds on inhale/exhale.
- **Temperament/attitude:** Be aware of “normal” behaviors of both individuals and within the herd dynamics; e.g., isolating, not competing for food, unusual lethargy, or any other significant behavior change.

## Restoring Our Pastures

By Kathy & Glenn Stanko

Whitewater, CO



We moved from city life to ranch life 25 years ago. This was a major life-style transition to the Western Slope of Colorado. This area of Colorado is technically a desert (i.e. receiving less than 10 inches of rainfall per year). Our elevation is 5,500 feet above sea level. We bought a 35-acre property with a stream running through it and pretty good shares of water from the creek. We were set and began settling in and figuring out how to irrigate and hay the fields.

Water levels in the creek are dependent on snowpack from the Grand Mesa, elevation 10,000 feet. So for the first 15-20 years we have been here, the snowpack was normal or above which meant a good irrigating season and a great hay crop.

The last 5 years brought a different story. Moisture became less and less as did the snowpack. One year our water ran out by the middle of June! Simultaneously, our body parts began to scream in pain at us. We could not do as much as we needed to nor wanted to. Now after two years and multiple hip and knee replacements between us, Glenn and I are back in the saddle again.

Last winter with the snowpack looking reasonable and our bodies feeling good, we started researching how to renovate our pastures to return them to productive growth. Contacting people I knew in the landscaping business, I was referred to Steve Hale with Triton Environmental. Steve came out and we went out to our pastures to take a look. Soil tests revealed good soil. The problem was compaction. Steve helped us lay out a plan and we went to work.

From a local ranch store we rented an AerWay® Shattertines implement to lift and fracture the tough soil. As the AerWay moves over the surface, the unique angles of the blades cracks and shatters compacted soil 8" and deeper to open new channels for air and water.

As you can see in the photos, the renovator slices through the top compacted layers to open up the soil. We had to put 27 concrete blocks on the implement to get the knives as deep as possible into the ground. This is all part of the no-till agricultural method. There are a variety of slicers and dicers that can be used. We did this in March. Timing depends on the area of the country you live in.





We have two fields we were working in. The main pasture, about 7 acres, was still in reasonable shape. The smaller pasture, about 1 acre, was in horrible shape. So, we had a huge mound of llama beans, about 17 cubic yards, which we tilled into this pasture for more nutrients.



Now it was time to fertilize. We used a liquid organic product from Triton Environmental that focuses on root growth and amending the soil, not top growth like many of the urea products. From the [Product Data Sheet, LOT 125](#) is a biologically enhanced product that aids in the conversion of fertilizer to complex plant nutrients, helps buffer salts, and augments micronutrient availability. It promotes soil aeration and water penetration of soil particles, thereby reducing runoff. Nutrients are stabilized in the rhizosphere where they remain available over a longer period of time. Our sprayer holds 55 gallons with 7 nozzles. It took a few trips to get the job done.



The last step: reseeding. We hired our neighbor to bring his tractor and 16-drill attachment to plant the seed. It was a bit of a challenge getting our neighbor's planter through our front gate and into the field. Coming out of the field, a fence post had to be removed. Tip: make all gate openings 2 feet wider than you think you will ever need!



We used an orchard grass/fescue mix from Buffalo Brand. On the small, barren field we added oats as a cover crop.



Pouring the seed into the bin.

We completed all of this by the middle of April. Now, we would wait until the spring runoff began. All of our irrigation water comes from the snowpack on the top of the Grand Mesa. We have access to this water from April 1 until November 1. The amount of water we can turn into our ditch depends on our Priority (e.g. #1 - #24) and the volume (cfs) as governed by state water laws. CFS is the cubic feet per second allowed through our weir. We have #2 and #10 priorities; just a bit of the #2 and a lot of the #10! Our Water Commissioner tells us where to set the weir based on stream flow. A whole lot of math and daily adjustments go on here in part dependent on the temperatures at the top of the Grand Mesa. Working with nature requires planning, flexibility and patience and even then ditches clog up and ditches overflow.

We spent the latter half of April and all May in the fields, losing shoes to the mud, but irrigating! Back breaking work but it always gives me great joy and a real high, Glenn not so much. What we did not get accomplished in time was marking, or creasing the fields to help the water

flow more evenly. This would have been helpful in the larger field, but the smaller field was so plowed up, that I do not think the creases would have stayed. Creasing is our first priority for next season.



And we are off and running as the seed is drilled into the pasture.



Since we focused on improving the soil, not the top growth, our hay yield was low. Next year will hopefully bring a different story. I will say that the weeds in the smaller field did exceptionally well. We have sprayed and cut them twice. In spite of the weeds, the cover crop of oats came on really strong, protecting the new grasses that were coming up. The photo shows the new sprouts and the oats among the existing grasses.

We learned a lot this year: did some things right, and made some mistakes. We met some incredible new people to advise us as we go along. Re-establishing a pasture takes a couple of years of diligent observation and work. Our biggest take-away from this past year: it is easier to keep fields healthy and productive rather than redoing!

## 10 Tips For Preparing Your Pasture For Grazing

Reprinted with permission from the Mid-West Lama Association, Newsletter, May 2022

**Editor's Note:** Although this article is focused on horse grazing, there is informational and important reminders for all grazing animal species.

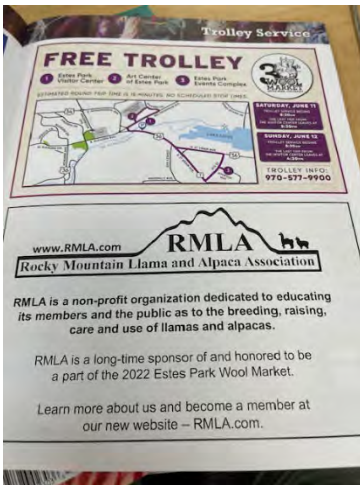
While starting grazing in the spring may seem as easy as opening the gate, there are several items to consider. This list outlines 10 tips for preparing your pasture, and horse, for grazing.

1. **Evaluate last year's grazing system.** Think about how your pasture worked, or did not work, in previous years. Some items to consider include stocking rate, paddock size and shape, number of paddocks, amount of forage produced (e.g., yield), weed control, and fertility. Keeping a grazing log and using aerial images can help you optimize pasture growth and meet your pasture management goals.
2. **Check fences.** Over the winter months, snow and wildlife (e.g., deer) can damage fencing. Check all fences and make repairs as needed before starting spring grazing. Also, make sure all gates are closed and latched.
3. **Check water sources and equipment.** Ensure water sources and equipment are clean and in working condition.
4. **Remove debris.** Walk the pasture and remove debris (e.g., plastic and garbage) that might have blown in over the winter months. This includes downed branches.
5. **Take soil samples.** Take soil samples every three years to determine pH and fertilizer needs. Soil sampling can occur as soon as the frost is out and the ground is dry. You can collect one soil sample per 20 acres of pasture if the management, topography, soil type, and plant species are similar. Sampling should occur from multiples sites within the pasture. You can obtain soil testing kits from your County Extension Office.
6. **Fertilize.** When applying fertilizer, it is best to apply half of the amount in early spring and the other half in the middle of June. The ideal time to fertilize is right before a gentle, soaking rain. Keep horses off the pasture until you can no longer see the fertilizer pellets.
7. **Control weeds.** Spring is a good time to control annual weeds. Mowing is usually sufficient for annual weed control, but you may need to use a herbicide. Always follow the directions and grazing restrictions listed on the herbicide label.
8. **Evaluate your horse's health.** Schedule your annual dental exam and vaccinations with your veterinarian. Test your horse's manure to determine fecal egg counts and deworm accordingly. Proper deworming will reduce the parasite load in your horse and on your pasture.
9. **Let the grass grow.** Keep the horses off pastures until the ground is firm and the grass has grown to 6 to 8 inches. Once the grass has reached this height, start acclimating the horses to the pasture in 15-minute, daily increments (15 minutes the first day, 30 minutes the second day, etc.) until you reach 5 hours of grazing. After that, unrestricted grazing can occur. This gradual transition provides enough time for the horse's microbial populations to adjust, which reduces the chance of laminitis and colic.
10. **Make adjustments as needed and consider rotational grazing.** Grazing requires flexibility to respond to plant growth, which depends on weather conditions. Having a dry lot, multiple pastures, and practicing rotational grazing can help buffer adverse weather conditions. Rotational grazing also makes resting, mowing, fertilizing, controlling weeds, and dragging pastures more manageable.

## When Did The Estes Park Wool Market Begin?

By Lougene Baird  
Cottonwood, AZ

The Estes Park Wool Market began as a Town of Estes Park event in 1990. Members of RMLA recognized the wool market as a perfect place to promote llamas and alpacas for fiber and other uses. RMLA members and lama owners in Estes Park area and the northern Front Range area of Colorado worked together to establish halter and performance classes and fiber education and sales in the small commercial barn. The first ALSA Llama show was in the early 1990s. The alpaca shows were sponsored by the Alpaca Breeders of the Rockies. The camelid shows in the mid-1990's were large with registration of over 1,000 entries in the llama show. The wool market draws people interested in fiber from across the country.



RMLA has been a financial supporter of the wool market since the beginning. RMLA members have filled many volunteer positions for the fiber and halter shows held each year. With our members' support RMLA continues to meet its Mission Statement to educate the public about the care and use of the animals – llamas, alpacas, vicunas and paco-vicunas. Thank you to our members who continue to contribute to this most important weekend.

## EVENTS

## The Estes Park Wool Market Returns

By Geri Rutledge

Let's start with a few photos.



RMLA member Karen Kinyon learning continuous strand weaving on the triangle loom



Paco-Vicuna



Halter Classes were full.



Performance - big guy on a small platform.

The Market returned to a totally revamped venue: the *Estes Park Events Complex*. The llamas have a new barn, vendors have an expanded area in the Event Center, the Pavilion housed the pigs, paco vicuñas and alpacas were in the center barn. Sheep were in yet another other barn and it goes on and on. Quite a wonderful experience.

Classes and workshops on Thursday and Friday were full with about 200 attendees. Karen Kinyon and I took continuous strand weaving on the triangle loom. See the photos.

The enlarged vendor area was only about 3/4 full. They had room for more in case you are thinking about next year. Fleece judging for sheep, held in the Event Center, was a huge hit.

The ALSA llama and alpaca show was back in force this year. There were 32 participants in novice class!! All halter classes were full.



A Large interest in shorn fleece judging.



Racks of fiber everywhere.



# Alpaca Body Condition Scoring



## WHY IS BODY CONDITION SCORING IMPORTANT FOR ALPACAS?

Combined with routine body weight monitoring, body condition assessment is a key indicator of an alpaca's nutritional status. It may help owners become aware of possible health issues before other signs appear.

- Overweight alpacas are more prone to heat stress, infertility, difficult births, poor lactation, neonatal mortality
- Underweight alpacas may suffer nutritional deficiencies, poor skin/fiber quality, poor reproduction, unthrifty crias

For alpacas in particular, there is no substitute for hands-on evaluation of body condition.

- Variations in alpaca frame sizes mean that body weight comparisons among individuals may not be relevant.
- Longer fiber staples can mask significant differences in condition
- Later stages of pregnancy can hide their actual status

Always compare to a standard guide and review prior scores for the same individual, rather than comparing to other alpacas.

## ASSESSMENT GUIDELINES & TIPS

Body condition scoring (BCS) is performed by visual observation and feeling of the bony structures. A flat hand is passed firmly over important points on the body, feeling for sharp features and/or pressing to feel for excess fat. The goal is to assess the amount of cover between bony projections and the skin.

### Key areas include:

#### *The area around and just behind the shoulders*

- The shoulder bone should be palpable but not sharp; a thin alpaca will begin to show a diagonal crest from the point of the shoulder up towards the withers
- The withers should be rounded and not sharp; a thin individual will have a sharp backbone around and behind this area
- The sides should show a tuck-in just behind the shoulders; on an overweight alpaca, this area will be filled in

#### *The ribs and spine*

- Should be slightly palpable with firm pressure, but without spaces between individual ribs or vertebrae, and without a spinal crest.

#### *The zone between the ribs and the hips*

- Vertebrae extending upward and to the sides should be palpable but rounded; on thin alpacas, these bones will begin to project, forming a vertical crest and horizontal "shelf"
- The flank should have a smooth appearance, with a slight tuck in front of the hind legs. On thin individuals, there will be a sunken area just below the vertebral "shelf;" overweight alpacas will lose the inward tuck and show no contour at all.

#### *The hips*

- Should be rounded but with palpable bony structures. Thin alpacas will have sharpness at hip points and near the tailbone, with a diagonal crest appearing along the rump; overweight alpacas will accumulate fat on top of the rump and near the tail, and bones will be difficult to feel.

#### *The sternal/keel and inguinal areas, between the front and back legs*

- Thin alpacas will have little to no fat, appropriate alpacas will have slight to moderate fat, and overweight individuals will have obvious fat bulges.

#### *The abdomen closest to the ground*

- Will show fat accumulation in overweight alpacas.

### When to assess body condition

- For all herd members, it is important to assess body condition throughout the year, as pasture and hay quality changes, and energy demands fluctuate with season and weather.
- For reproductive females, it is important perform an assessment at mid-pregnancy and early to mid-lactation.

## INTERPRETING BODY CONDITION SCORE

This table shows the appropriate ranges of BCS for alpacas at various life stages. Individuals with scores outside of these ranges may need a medical evaluation or change in feeding plan.

Alpaca	Appropriate Body Condition Score
Growing (<12 months)	3.0 – 3.5
Adult male	2.5 – 3.5
Non-pregnant adult female	2.5 – 3.5
Pregnant female	3.0 – 3.5
Geriatric alpaca	2.5 – 3.0

# Alpaca Body Condition Scoring Guide



Description	Score	Side View*	Top View*	Front*	Back*
<b>THIN:</b> Deep depression on either side of dorsal vertebral processes. Sunken-in flank, with bony "shelf" just above it. Sharp shoulder, withers, and hip bones; prominent ribs. Prominent V-shape to keel, and sharp inverted V between rear legs.	1.0				
	1.5				
	2.0				
<b>APPROPRIATE:</b> Slight cover over bony structures; ribs and spine palpated with slight pressure. Body contours visible but smooth in appearance. Healthy muscle mass. Slight to moderate fat in keel and between rear legs.	2.5				
	3.0				
	3.5				
<b>OVERWEIGHT:</b> Bone structure palpable only with moderate to firm pressure, or not palpable. Little to no body contour visible; rounded appearance. Fat pads visible over keel, between rear legs, and possibly around tailhead.	4.0				
	4.5				
	5.0				

\*Appearance will change based on fiber length and coverage, as well as degree of pregnancy. Manual evaluation is important.


Adapted from: Penrose Leland, Body Condition Scoring of Llamas and Alpacas. Robert J. van Soest, DVM, MS, PhD | Australian Alpaca Association 2008. Alpaca Note #4: Body Condition Scoring. BCSEA Alpaca. | Upton et al., JVS 1998;72:80 and Mossel A. Body condition scoring sheep. Sheep and Goat Practice 1991



Ron Hinds and Elizabeth Cline  
5704 Canyon Trail  
Elizabeth, CO 80107  
303-646-1320

**MAGNIFICENT QUALITY —  
— PERSONALITIES & COLOR!**

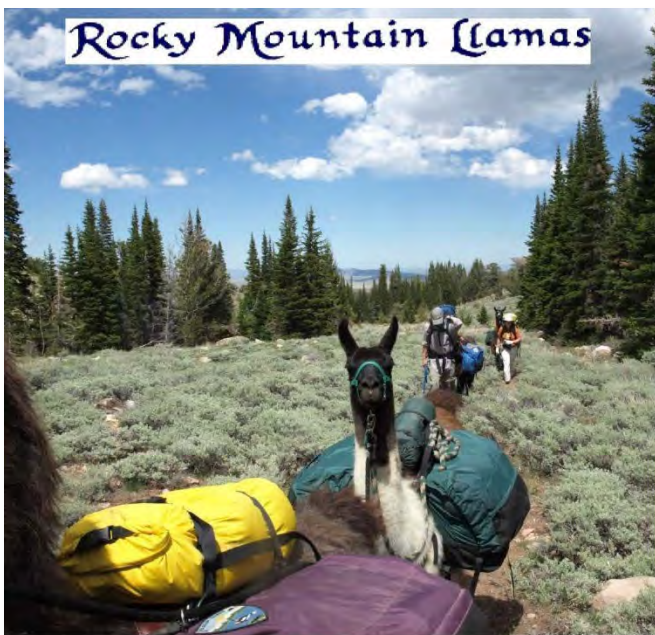
www.elZorroColorado.com  
alpacas@elzorrocolorado.com



**Antelope Alpacas  
Fiber Arts Center**  
303-646-YARN (9276)

Fiber Arts Resource Center  
Yarns, Fiber, Clothing, Blankets  
Fiber Arts Supplies & Classes  
Knit, Spin, Weave, Crochet, Felt

360 Main Street  
Elizabeth, CO 80107  
AntelopeAlpacas@aol.com  
www.AntelopeAlpacas.com



**Rocky Mountain Llamas**

Trail-Tested, Llama-Approved®

Halters ~ Pack Systems ~ Books and DVDs

New and Used Gear

[www.rockymtllamas.com](http://www.rockymtllamas.com)



Niwot, CO 303-530-5575

**Chris Switzer, Weaver**  
1236 Glacier View Lane  
Estes Park, Colorado 80517  
[chrisalpaca@aol.com](mailto:chrisalpaca@aol.com)  
(970) 586-4624  
**\* ALPACA & PV FLEECES**

---

*Spinning*  
ALPACA • LLAMA  
CAMEL • PACO-VICUÑA

by Chris Switzer, Weaver  
4th Edition • 52 pages

- NEW Projects
- Basic SPINNING
- Camel with Sample
- MARKETING
- Revised Dyeing Section
- Updates and changes



Retail  
\$12.00 each  
Plus \$3.50  
Shipping



<https://howtocatchallama.com/>

Animal rescue site for people who need to catch llamas and alpacas.

**Designed for people who know absolutely nothing about llamas and alpacas.**

The site gives those who need to catch llamas the tools to do so. It has links to locals who can help.

A joint effort of the International Llama Foundation and the International Lama Registry



*It's Truly Amazing!*

...what the volunteers and contributors of Southwest Llama Rescue can accomplish together. Help is always needed, and your time and money go a long way! And when you designate SWLR as your charity when you shop at Smile.Amazon.com, a percentage goes to SWLR. It's automatic, doesn't cost you extra, and really helps SWLR! *Contact us* to find out other ways to help...

**Website:** [SouthwestLlamaRescue.org](https://SouthwestLlamaRescue.org)

**Email:** [SouthwestLlamaRescue@gmail.com](mailto:SouthwestLlamaRescue@gmail.com)

**Facebook:** [Facebook.com/Rescue.Llamas](https://Facebook.com/Rescue.Llamas)

SWLR is a 501(c)3 non-profit organization supported 100% by donations. Ad paid for by Southwest Llama Rescue, Inc.



## Merry Christmas and Ho-Ho-Ho

What! It is still late summer, and we haven't even had Halloween yet! Regardless, RMLA has information to share that each of us need to think about.

If your home and outside areas are decorated with live, store-bought tree and boughs, please discard these decorations away from where your animals may eat them.

Store bought or Christmas trees from Christmas tree plantations are likely to contain or be covered with pesticides that are dangerous for your animals, and free-roaming browsers, to eat.

Growers are likely to use harmful pesticides that may cause browsers to become very ill or even die.

Let's keep a happy farm/ranch and correctly dispose of plantation-grown greenery.



## FIBER

### Wooly Tidbits

By Chris Switzer, Estes Park, CO

Did you know that the word vicuña is a color name in the fashion industry? It's a very special brown. If you've ever seen a wild vicuña, you know the color. And, at the base of their neck are some thick light colored guard hairs that help protect the lungs and heart. These are not useable for spinning. When visiting a mill in Arequipa, Peru, we saw fiber samples of 9 microns for vicuna !

So, what is Paco-vicuña? "Paco" is a scientific term for alpaca. Since both animals graze together on high-altitude plains, they also get together and have offspring. Paco- vicuña is a cross. Their fiber is finer and softer than alpaca, but natural colors are limited to beige, golden, and the wonderful brown, i.e. no grey, black, or white.

I tell my spinning students that "all fleeces are not created equal." It's important to look over a fleece before purchasing; say NO to vegetable matter; skirting by the breeder is a must.

On another note, the other night, while watching a PBS travel program about Liechtenstein, we were pleased to see llamas used for hiking, as companion animals, but not for packing. Best of all, "lunch" was served alongside the trail. Over a small fire a pot contained cheese fondue and long sticks were used to dip in pieces of bread. Wonderful. I wish I could go.

P.S. I'm glad to share some raw fleece of Paco- vicuña to fellow spinners if you'd like to try it. Mill carded brown Paco- vicuña roving is also available for a fee -- just email [chrisalpaca@aol.com](mailto:chrisalpaca@aol.com)

Chris & Phil Switzer are longtime members of RMLA. Bobra Goldsmith taught Chris how to care for llamas and her mom, Olga Oliver, taught Chris how to spin. Chris & Phil were on the founding committee for Estes Park Wool Market. Over 40 years' time they had 600 crias on their farm.

## Wunsapana Llamas 4-H Club

by Leader, Teri Conroy (Llama owner for 17+ years)

Altamont, NY

Wunsapana Llamas 4-H Club began in 2018 as an offshoot of a Livestock Club started by the Cornell Cooperative Extension of Albany, NY. Dwindling numbers in the agricultural clubs (due to the waning of farms in the area), prompted the Livestock Club to give an opportunity to all children (not just those that live on farms) to participate via host farms (horse/goat/chicken/sheep, etc.). There was enough interest in llamas to start our own club, which I agreed to do with Jen Applebee. She is the mom of one of the members and familiar with how 4-H works. I could not have this club without her!

My club is comprised of six girls between the ages of 11 and 14. They are a tight knit group and come from different schools and backgrounds. Over these last few years, the girls have created an amazing bond with the llamas and each other (and me!). Each girl has a llama assignment, and they change yearly. I do not charge to lease the llamas, but the kids must do farm work in exchange for use. Best part, they have a blast working together – cleaning water buckets, mucking, sweeping, grooming llamas, and all the rest.

We practice as much as we can, two to four times a month. I have 30 acres of woods, trails, pasture, and paddocks, and we have a few obstacle courses for the llamas. The kids helped me build a 4-H obstacle trail in the woods off the groomed trails. It's all natural – logs that had fallen and we dragged other downed trees for plenty more over and under obstacles.

The club has done many activities with the llamas on and off the farm over the last few years. They have held educational and hands-on demonstrations at local libraries and helped with a Toys-for-Tots event at a local business. They have helped with the llamas at a local church for a living nativity and marched with llamas in Altamont's annual Memorial Day Parade. Last spring, they painted kindness rocks and with permission from the village mayor, we brought the llamas up to Altamont Village. The kids walked the llamas and hid the kindness rocks around the park.

The club participated in our local Altamont Fair the last few years. We are the only llama club, so it's not exactly a competition, and we are only there for one day. It is another educational and fun opportunity for the kids and their llamas, and a great time to work their PR skills!

The end of September will be the club's second year attending the BIG E Llama Show in West Springfield, MA. It's a large llama show with plenty of youth and the club had a blast last year! They won and lost with grace, learned a lot about the world of showing, and made new friends. Watching them support each other was my greatest memory from last year.



First 4-H Llama Camp: Wet felting a club banner, hosing alpaca, Griffin, and bringing in hay.

The club has learned a lot about fiber, from shearing to skirting, to carding and spinning. They learned to needle felt and put on a needle felting demo at our local fair this year.

The kids have learned a lot about hard work and commitment, the cost of running a farm, and the circle of life. They have helped me care for elders, experienced loss, and helped me with newborn cria – their birth, growth, and now training.

This is an amazing group of girls, and just as wonderful are their parents. The club could not function without their support. The kids are thrilled to be members of RMLA and thank you, Sandra Schilling, for encouraging us to join. While I am writing this introduction, the girls all look forward to contributing to your newsletter in the future.



Educational library event. L-R: Bella Rogers, Emma Hunt, Teri Conroy, Elara Newell, Reese Huntsman, Sophia Bivona, and Paige Huntsman. Little sister of Elara and future member, Talia Newell in front.



Llama judge, Philip Feiner, spent time helping the girls with showmanship at our first Llama Camp. L-R: Paige Huntsman, Reese Huntsman, Sophia Bivona, Bella Rogers, Elara Newell, and Phil Feiner.



Showmanship Class

## Youth Member Shines

By Bella Rogers  
Altamont, NY

I am a member of the Wunsapana Llamas 4-H club and as a club we showed our llamas at the Altamont Fair in upstate NY. We've spent months training our llamas in preparation for the fair. I have a new llama, Jade , who is very young and I am teaching her to stand, perform obstacles and become desensitized to obstacles she may encounter at the fair.

Our club participated in Llama showmanship , obstacle and PR at the Altamont Fair in Altamont, NY.

Our 4-H club also had a needle felting demonstration at the sheep barn at the Altamont Fair. We needle felted llama fiber and talked to the public about how to needle felt and what we use and why. We had a great time talking to the kids and watching the wool spinning demo as well.



Bella and Jade



'I think I am almost past this thing!'



Club needle felting demonstration.

## Control Of Lice In Alpacas

Jane Vaughan BVSc PhD MACVSc

Reprinted with permission from the author.

### Background

Lice infestation of alpacas is widespread in Australia, albeit at low levels, and its presence is usually detected in herds at shearing time. Lice are species specific, meaning that camelid lice only infect camelids, cattle lice only infect cattle and sheep lice only infect sheep.

There are two genera of camelid lice, namely the biting or chewing louse, *Bovicola* spp. (Figure 1), and the sucking louse, *Microthoracius* spp. The former genus of lice feed superficially on the skin, the latter penetrate the skin and feed on tissue fluids. The former genus was brought into Australia on imported alpacas, the latter species was eradicated prior to importation as injectable parasiticides were administered in pre-export quarantine thus removing *Microthoracius* spp., however topical parasiticides were not administered, thus allowing entry of *Bovicola* spp. into Australia. *Bovicola breviceps* was first diagnosed in South Australia in 1996 (I Carmichael, personal communication) and has subsequently been diagnosed in camelids in Western Australia, Victoria, New South Wales, Queensland and Tasmania.



Figure 1 *Bovicola* spp lice (source: [www.agric.wa.gov.au](http://www.agric.wa.gov.au)).

### The parasite

*Bovicola breviceps* is a biting (chewing) louse, which has been recorded from the alpaca, llama and guanaco. As already stated, lice are very host specific parasites. Those found on the alpaca or llama are different from those found on cattle, sheep or goats. There has been no recorded transmission of lice to or from camelids and ruminant livestock.

Biting lice are found at the base of hair shafts, close to or on the surface of the skin. On alpacas they may be found on any part of the body but are more common around the base of the tail, along the sides of the thorax and abdomen, on the upper part of the limbs, and in the flank. Shearers tend to initially find lice and their white eggs, particularly in brown and black animals, when shearing around the flank and lateral thorax behind the elbow (Figure 2).

Biting lice do not in fact bite their host or directly damage the skin. They feed by chewing on scurf which is sloughed off from the skin, hence the alternative name “chewing lice”.

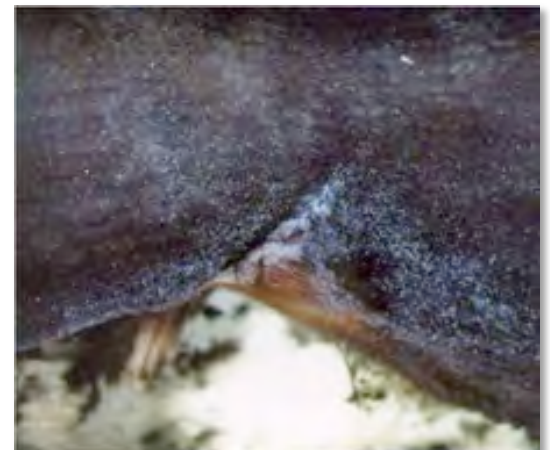


Figure 2. Lice eggs are most easily seen in the flank area and on the lateral thorax behind the elbow of brown and black alpacas at shearing time.

### Life cycle and survival

As with other *Bovicola* species, the life cycle of *B. breviceps* is simple (Figure 3) and may be completed on a single animal. The life cycle details given by Fowler (2010) and extrapolated from local and overseas data referring to related louse species provides some general lifecycle details which might be expected in the Australian environment. Adult lice copulate, then the female deposits fertilized eggs onto hair fibres. The eggs hatch within 1-2 weeks to give rise to a first stage nymph. The nymph undergoes 3 moults as it matures to adult size. Maturation takes 2-3 weeks. The life cycle can be completed in as little as 3-5 weeks. Adults may live on average for 30-50 days.

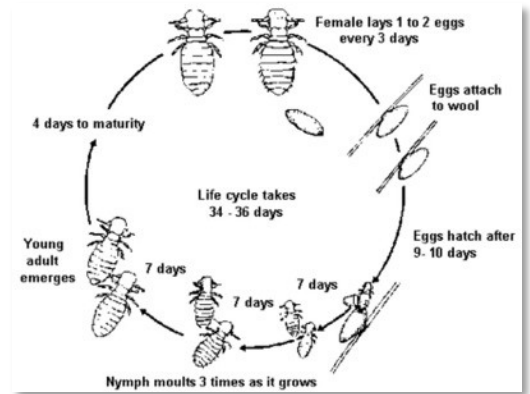


Figure 3. *Bovicola* spp. life cycle (source: <http://informedfarmers.com/sheep-lice-facts>).

In most associations of lice with their host there is a seasonality in the natural levels of infestation, with lice numbers increasing over winter and declining in hot weather. The earlier reports of *B.*

*breviceps* on alpacas in Australia were in winter, but most current reports are of lice detected at shearing in late spring or early summer. This is probably due to a buildup in lice numbers in the cooler months preceding shearing. The infestations would probably have been even heavier a few months earlier, whereas lice may not have been detectable on the same animals in summer after shearing.

It is generally thought that lice do not survive for more than a few days off the host, however, Dr Chris Mayberry (WA Department of Agriculture) has observed live camelid biting lice in alpaca fibre that had been removed from alpacas two weeks previously (R Dixon, personal communication). Dr. Peter James (SARDI, South Australia) confirms that sheep lice can also persist for a similar time in shorn fleece.

The survival of lice, which are freed from their host on inanimate objects or shed into the environment, and thereby starved, is another matter. Longevity of starved arthropods is governed to a large degree by their metabolic rate and this is, in turn, dependent upon temperature. Over a limited range, metabolic rate is directly proportional to environmental temperature, which means that lice off the animal will live longer at lower temperatures, but they cannot survive for extended periods. Studies in New Zealand (Heath, 1973) on cattle and goat lice showed that at least half of the adult female lice were dead within 2½ days of being removed from their host and all were dead within 5 days. Nymphs survived for 4 - 6 days. Some eggs hatched in 8 - 12 days, but the unfed newly emerged first stage nymphs lived no longer than 12 hours.

### Transmission

On the basis of these findings the chance of transfer of lice via inanimate objects such as common grooming utensils, shearing gear, blankets or harnesses which are in constant use may be quite high and owners and shearers should be aware of this and disinfect them accordingly. In the case of housing, bedding or pasture, a 14 day period based on the incubation of the egg, or 7 days if only adult or nymphal lice are considered, would be sufficient to ensure absolute protection in the absence of any additional control by chemical or physical means.

Louse eggs are firmly attached to whole hair fibres. Alpacas are unlikely to shed whole hairs when rolling and even if they happen to do so and a small percentage of attached eggs survive and hatch, the newly emerged nymphs are likely to perish within hours. Spread of lice amongst alpacas via communal rolling areas is one of the least likely mechanisms of transmission.

The major source of transmission of lice from animal to animal is most probably associated with situations where close body contact occurs. There are numerous such occasions, which owners will readily recognize (e.g. mating,

lactating hembra with cria at foot, communal transport, shows or shared stables). In addition, as mentioned above, the use of contaminated shearing, grooming and harness equipment on multiple animals could be very important.

### Diagnosis

Adult *B. breviceps* are 1-1.5 mm long, white or light tan (Fowler 2010; I Carmichael, personal communication). They are smaller than adult sheep or cattle lice, and are thus harder to see with the naked eye. Alpacas should be examined for lice in good light, preferably outdoors in sunlight. A hand lens may be useful to differentiate lice from detritus in the fleece. The base of the hair fibres in several of the favoured sites (see above) should be carefully observed for lice or attached eggs (Figure 4). Lice tend to move away from the light as the fleece is opened so it is necessary to make numerous partings in the favoured sites. Some individuals are much more adept at detecting lice than others, hence it is unwise to assume that a single negative examination of a herd or a few animals in a herd guarantees that they are completely free from lice. Another factor is that lice numbers are likely to be at their lowest, perhaps even undetectable levels, in summer; failure to find lice at that time of the year is not conclusive evidence that all animals are negative. Because of the direct animal to animal transmission of lice, the variation in susceptibility of individuals and the difficulty in detecting very low numbers of lice on animals,



Figure 4. Lice eggs attached to the base of recently-shorn alpaca fleece.

a single infected animal on a property suggests that all animals on that property are potentially exposed.

### Adverse effects on alpacas

In most animal hosts, heavy infestations of biting lice cause irritation, which leads to rubbing and scratching. In sheep and goats this can lead to severe fleece derangement with loss in fleece value. Fowler (2010) reports that in heavy infestations in llamas the coat lacks lustre and has a ragged appearance and the animal may bite and rub itself. This has been observed in some but not all alpacas infested with biting lice in Australia (Figure 5). Some heavily infested alpacas have been detected only at shearing and had given no indication through extra rolling, rubbing or scratching that they were irritated by the infestation. Furthermore, obvious detrimental effects were not present in the fleeces of these infested animals.



Figure 5. Australian alpaca showing areas of damaged fleece secondary to self-mutilation from lice infestation.

Owners need to be aware, therefore, that infestations of lice in alpacas may or may not cause clinical signs or noticeable fleece damage and may only be detected at shearing or during a specific search for them. Moreover, only certain stressed animals in the herd (e.g. debilitated animals or those with concurrent disease, lactating hembras, working machos), or genetically susceptible or immuno-compromised

individuals are likely to develop heavy infestations; the remaining animals may harbour only small residual infestations (e.g. at the base of the neck), or no detectable infestation at all.



### Control and eradication

Alpaca and llama owners and breeders need to understand the following:

- Lice are host-specific, therefore infected animals could only have caught lice from other alpacas or llamas.
- Lice are eradicable. If the herd is treated correctly, the louse population can be removed permanently.
- Fleece quality in heavily infested alpacas could be compromised.

The major reasons why louse eradication fails in sheep are:

- Mismustering – This is less of a problem in alpaca and llama herds as numbers within herds are much lower than sheep flocks.
- Recontamination by wandering stock – Alpacas and llamas rarely have an opportunity to wander and most camelid farms are non-adjacent.
- Poor boundary fencing – Again, most camelid farms do not share common boundary fences. In cases that do, it is important to communicate with the neighbouring camelid farm about lice infestation and control measures being undertaken.
- Incorrect application of lousicide.

Eradication on a property is achievable given a determined approach, but is a waste of effort unless *steps to prevent reinfestation are instituted*. Alpacas and llamas have easy access to other camelid herds through mobile matings, shows, sales and agistment. Because of the mobility of animals, owners must be aware of possible reinfestation at outside sites or from visiting animals, even after initial eradication on their property. Mobile matings in particular provide an excellent means of reinfection of camelids by lice because of their prolonged close contact whilst mating.

### Treatment

*Bovicola breviceps* is a biting or chewing louse and is not affected by injectable parasiticides, so topical treatment must be applied to remove lice infestations. Liquid preparations are recommended over powdered products. There are many topical lousicidal preparations registered for use in sheep, cattle, goats, horses and small animals in Australia; however, alpaca farmers must remember that no chemicals are registered for use in alpacas and as such any use is off-label and should be performed with caution (Table 1).

Pesticide residues in wool and meat are a major issue in the Australian sheep and cattle industries. Cattle and sheep lousicides list meat and wool withholding periods (WHP), which must also be considered by alpaca farmers as they are also produced for their fleece and meat in Australia.

Withholding periods shown for sheep and cattle may not be the appropriate withholding period for camelids as testing of residues in camelid wool and meat has not been performed by pharmaceutical companies that make these products. Note that products registered for use in cattle only do not take into account wool withholding periods.

**Synthetic pyrethroids** such as deltamethrin (e.g. Clout-S®) need to be applied within 24 hours of shearing to cleanly shorn sheep unless explicitly a long-wool product. Alpacas and llamas do not usually have their head or lower legs cleanly shorn, and often have more fibre left along the dorsal midline to prevent sunburn. The distribution of synthetic pyrethroids following backline treatment is very uneven. Synthetic pyrethroids are therefore unsuitable for lice eradication in camelids.

**Pour-on organophosphates** such as fenthion (e.g. Tiguvon Spot-On Cattle Lice Insecticide®), although used successfully to treat the first infested alpaca in Western Australia involve risk of overdosing. There have been two anecdotal reports that alpaca fibre is stained/becomes greasy at the point of application, and is only removed at shearing time (R Dixon, G Jackson, personal communication). Pour-on applications are easy to use but they will

not kill all lice, hence are unsuited for a concentrated attempt at lice eradication on a property. Pour-on and dipping organophosphates may be toxic in stressed or overheated animals. Treat only on a cool day and avoid stirring up animals when mustering and handling them in yards. It is recommended that alpacas are observed for 8-12 hours after organophosphate treatment and your veterinarian contacted immediately if any animals appear ill (e.g. staggers, excessive salivation).

**Insect growth regulators** such as triflumuron (e.g. Command®, Exilice® and Zapp Pour-On®) and diflubenzuron (e.g. Fleececare® and Strike®) work by inhibiting chitin synthesis, thus killing nymphs which need to synthesize chitin to moult successfully. These products do not kill adult lice, but rely on them dying naturally over several weeks. The period of persistence of these products in alpaca fleece has not been determined and it should not be assumed that it is similar to that in sheep wool. Although these products are possibly suitable for lice control in camelids they do not necessarily guarantee eradication and are therefore not recommended for this purpose.

**Table 1. Sheep and cattle lousacides available in Australia. None are registered for use in alpacas or llamas.**

Active ingredient	Commercial name	Species registered	Method of application	WHP for registered species*
* Products registered for use in cattle do not take into account wool withholding periods (WHP). Withholding periods shown for sheep and cattle may not be applicable to camelids.				
<b>Synthetic pyrethroids</b>				
Deltamethrin	Arrest Easy-Dose® Bombard Pour-On® Coopers Easy-Dose®	cattle	pour-on	meat: nil
Deltamethrin	Clout-S®	sheep	pour-on < 24 h off shears	meat: 3 days
α-Cypermethrin	Vanquish Long Wool®	sheep	pour-on < 10 months off shears	meat: nil; wool: 2 months
<b>Organophosphates</b>				
Diazinon	Diazinon® Eureka Gold®	sheep, cattle	dip, jetting fluid or dressing < 24 h off shears	meat: 14-21 days
Temephos	Assassin Sheep Dip®	sheep	plunge or shower dip 14-42 d off shears	meat: 14 days; wool: 6 months
Fenthion	Tiguvon Spot-On Cattle Lice Insecticide®	cattle	spot-on	meat: 10 days
<b>Insect growth regulators &amp; other chemicals</b>				
Dicyclanil/diflubenzuron	CLiK Spray-On Fly/Lice®	sheep	spray-on	meat: 21 days; wool: 6 months
Diflubenzuron	Fleececare® Strike®	sheep	dipping and jetting 10-42d off shears	meat: nil; wool: 6 months
Diflubenzuron	Magnum IGR Pour-On® Stampede Pour-On®	sheep	pour-on < 24 h off shears	meat: 0-7 days; wool: 6 months
Triflumuron	Command® Exilice® Zapp Pour-On®	sheep	pour-on < 7 d off shears	meat: 14 days; wool: 2 months
Imidacloprid	Avenge Pour-On®	sheep	pour-on < 24 h off shears	meat: 21 days; wool: 6 months
Spinosad	Extinosad Lice & Fly Eliminator®	sheep	plunge or shower dip, short or long wool	meat: nil; wool: nil
Spinosad	Extinosad Pour-On®	sheep	pour-on off shears or long wool	meat off shears: 14 days; wool: nil
Ivermectin	Coopers Blowfly & Lice Jetting Fluid®	sheep	hand jetting in long wool only	meat: 7 days

### Treatment of choice

Use of **spinosad** (Extinosad Lice and Fly Eliminator®) in a plunge or shower dip, with two applications 2-3 weeks apart, has been shown to eradicate lice from an alpaca herd (Vaughan 2004). Alpaca farmers must ensure that the alpacas are thoroughly wetted to the skin all over so the active ingredient reaches the lice; this is achieved by *adding a wetting agent (such as alcohol alkoxylate) to the dipping solution*. Dilute spinosad in water according to the on-label recommended rate for sheep. No lousicide products are registered for use in camelids and owners using these chemicals need to be aware that use in camelids is off-label.

However, this treatment has already been used on many alpacas across Australia without adverse effects.

Spinosad will kill adult lice and nymphs but not unhatched eggs. Two weeks should be allowed to pass after shearing (to allow shearing cuts to heal) and animals should be treated as soon as possible thereafter. Because alpacas and llamas have little lanolin on their fibre, residual concentrations of spinosad are unknown and may be inadequate to kill nymphs emerging from eggs present on the hair fibres at the time of the initial treatment.

Therefore, a second application of spinosad should be applied 14-21 days after the first application, before these nymphs can develop to become mature egg-laying adult lice. Under most circumstances all lice eggs from the initial infestation should have hatched by the time that the second treatment is given and all nymphs from them will be killed by this treatment.

Treat all alpacas on the same day, including visiting or sick animals and new born crias. It is vitally important that the entire animal is wet to the skin.

Mechanical and chemical stripping of spinosad from recycled dipping/jetting fluid is minimal in alpacas (Vaughan 2004), possibly because of the lower lanolin content of camelid fibre, so top up dip levels using the same dilution rate as the original solution.

Spinosad breaks down in ultraviolet light so applications on wool leave no residues on wool or in meat of slaughtered sheep. Consequently there are nil withholding periods for this product in sheep and it is not a scheduled poison.

### Procedures and cautions

Eradication of lice is a labour intensive and costly exercise, but continued use of more convenient pour-on treatments may be a less effective means of control and may cause a build-up of pesticide residues in the fibre and place the alpaca fleece industry at risk. Eradication is preferable, but may prove difficult if the herd cannot remain “closed” and separated from all other camelids that could act as a source of re-infestation. Use of pour-on treatments applied only to visibly infested animals may be the only treatment option for farmers who cannot maintain a closed herd because of show attendance and/or has a reliance on mobile matings.

It is essential that alpaca and llama farmers read instructions for use and handling of pesticides carefully before use. None of the above-mentioned chemicals are registered for use in camelids. It is recommended that breeders consider hiring a sheep-contractor with a high-pressure hand-spray unit or mobile plunge dip to treat their animals correctly when attempting lice eradication. Alpacas may aspirate the dipping fluid into their lungs, leading to pneumonia and death.

After dipping, place the animals on paddocks that have not had stock on them for at least seven days. Any sheds or shelters should be rested from animal contact for at least 7 days prior to dipping the animals.

**Author’s Note:** *This paper has been modified from the paper “Control of the camelid biting louse in Australia” that appeared in the winter edition of Alpacas Australia in 1999. The author does not specifically endorse any commercial product mentioned in this article.*

## References

- Foreyt WJ. Veterinary Parasitology Reference Manual. 5<sup>th</sup> edition. Blackwell Publishing, Ames, 2001; pp 115-120.
- Fowler ME. Medicine and Surgery of Camelids. 3<sup>rd</sup> edition. Wiley-Blackwell, Ames, 2010; pp 231-235.
- Heath ACG. The biology and survival of starved cattle and goat biting lice (*Mallophaga* spp) at different temperatures and relative humidities. *New Zealand Entomologist* 1973; 5:330-334.
- Vaughan JL. Eradication of the camelid biting louse, *Bovicola breviceps*. *Australian Veterinary Journal* 2004; 82:216-217.
- Vaughan JL, Carmichael IJ. Control of the camelid biting louse, *Bovicola breviceps*, in Australia. *Alpacas Australia* 1999; 27:24-28.

USE GOOD HUSBANDRY TECHNIQUES. KEEP GOOD RECORDS. WRITE DOWN TREATMENTS/MATING DATES/MEAT WITHHOLDING TIMES.

NO PRODUCTS ARE REGISTERED FOR USE IN ALPACAS. CONSULT YOUR VETERINARIAN AND ALWAYS READ THE LABEL BEFORE USING ANY OF THE PRODUCTS MENTIONED. NEVER USE ANY PRODUCT IN ALPACAS THAT IS NOT REGISTERED FOR USE IN FOOD PRODUCING ANIMALS.

FOR ANY SIGNS OF UNUSUAL OR SERIOUS ANIMAL DISEASE, RING THE DISEASE WATCH HOTLINE: 1800 675 888.

Copyright © Jane Vaughan

The advice provided in this publication is offered as information only and is based on knowledge and understanding at the time of writing. While the information in this publication has been formulated in good faith, the contents do not take into account all of the factors that need to be considered before putting the information into practice. Accordingly, no person should rely on anything contained herein as a substitute for specific advice. The author does not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence that may arise from you relying on any information in this publication.

## FIBER

### A Trip to the Fiber Mill

By Sandy Schilling, Chino Valley, AZ



In 2018, my family attended our first National Alpaca Days in Prescott Valley, Arizona. There were three different alpaca ranches within miles of each other. It was awesome to visit all three and see the similarities and the differences. The most unique ranch had llamas, alpacas, sheep AND their own fiber mill. It was my first experience seeing a fiber mill and I was in awe of the entire process. The owners were amazing people with whom I immediately felt a connection. Today, Tom and Mette Goehring, the owners and operators of the [Ranch of the Oaks Mill](#), are dear friends of mine.

I don't know a lot about fiber processing or mills, so I interviewed Mette and Tom to share their story and mill with everyone.

The Ranch of the Oaks Mill is currently located in Prescott Valley Arizona. Tom and Mette originally opened the mill in Lompoc, California in 2006. In 2017, they decided to move all their animals and the mill to Arizona. California was just "becoming harder and harder to afford. Taxes were a big part," according to Mette. Ranch of the Oaks is one of the longest running single owned Belfast Mini mills still in production. They process huacaya and suri alpaca, llama, wool,

and mohair. In the past, they have also done camel, Qiviut, pygora and dog. The mill makes roving, yarn, core-spun yarn and felt.

**What got you into the mill business?** The joke is Tom's hand spinning couldn't keep up with my knitting. We knew we couldn't raise livestock for profit on our 20 acres at the time and wanted to work from home. We had friends that had a mill and they had more work than they could keep up with. So instead of investing in alpacas, which at the time were selling for \$30,000-\$250,000 plus, we decided to invest in a mill.

There is so much fiber out there, and most mills are backed up 6-12 months. We are lucky to have the mill on our property, so we have a very short commute. We can set our own hours, which is both a blessing and a curse.

**Does the customer need to prepare the fiber for you in any way?** Yes. Please skirt your fleeces. Which means remove as much VM (vegetable matter), manure and any other yuck that's in the fleece.

**Describe your mill process.** Once your fiber arrives, we check it in, and quickly go through each run to make sure we don't find any prizes, that could hurt our machines, like barbed wire, needles, cactus, rocks, etc. Once each run is weighed, it is assigned a work order that follows it through the mill with instructions. Instructions describe the end product that the mill will create.



Huacaya gets tumbled for about 15 minutes. Suri, wools, and other fibers do not get tumbled. Tumbling helps to remove dirt, short fibers and some VM. Then it's off to the scouring unit where it gets washed. Once washed, we let the fiber air dry on shelves.

Next is the picker, which helps open up the fiber, as it can get a bit matted during wash. Super fine fleeces bypass this machine." The picker helps eliminate any additional dirt or VM that may still be in the fiber.

The run then moves to the fiber separator. The separator "helps" remove vegetable matter (VM), shorts and inconsistent fibers. In this machine there can be a huge loss on some fleeces, depending on how much VM it contains or how uniform the fleece is. The fiber separator can also separate a dual coated fleece, sometimes also referred to as a "dehairing machine". Once as much VM is removed as can be, we are off to the carder, which is kind of like combing your hair.

The carder aligns the fibers, so they are all in the same direction and becomes roving. Roving is a tube of fiber that is combed off the carder. If the roving is going to a hand spinner, the processing stops here. If we are going to spin the fiber into yarn, it goes to the draw frame where we take multiple strands of roving and pass them through. The draw frame helps to further align the fibers and drafts, thins the roving out, to make it easier for our machine to spin.

Once at the spinner, it can take anywhere from 30 minutes to 8 hours to spin a run. It all depends on how thick or thin we are making the single. A single is the first part of a 2 or 3 ply yarn. There are multiple adjustments at the spinner, to get a consistent single. If something is not done correctly in prior machines, it will show at the spinner - in the form of lumps and bumps in the yarn or worse not able to spin. If it cannot be spun, we must start the whole process over.

After spinning, it's off to the pleyer, where we take 2 or more singles and ply them together. Once plied, the yarn gets put on a cone, steam set, and made into skeins on our skein winder.

**How long does it take to process an order?** That's a tough one to answer. Scouring alone is about 2-3 hours. Drying takes a day to 2 days. After that it depends on the size of the run. The fiber separator can really slow us up if it must go thru more than once. We can card about 3 pounds an hour. Spinning can take anywhere from 30 min to 8 hours. Plying about the same time frame.

**What else do you want people to know?** Please be patient. We, and other mills, are not mass-producing product as it's an art form. You just can't put fiber in one machine and leave it. There is a lot of hands-on work. We love what we do and take pride in our end products. Tom and I run our own machines. We are very picky about what leaves our mill. Not all mills produce the same yarn. We all have a little different style. Find a mill that makes an end product you like.



Thanks to Mette and Tom for all of the information and your time. This is such an amazing process! If you have a mill near you, it's worth a trip to see the process that your fiber goes through to become the roving, yarn, etc. that you use to create your treasures.

**Rocky Mountain Llama & Alpaca Association**  
Your North American Resource for Education and Information

**Mission Statement**  
The mission of the Association shall be to educate the members and the public as to the breeding, raising, care and use of llamas and alpacas.

**Order at [RMLA.com](http://RMLA.com)**

**The Youth Llama Project Manual**  
from the Rocky Mountain Llama and Alpaca Association

**Caring for Llamas and Alpacas**  
A Health and Management Guide  
Clare Hoffman, DVM  
Ingrid Asmus

**RMLA**  
Rocky Mountain Llama and Alpaca Association  
501(c)(5) Non-profit Organization - Est. 1983

**To Join RMLA:**  
[www.rmla.com](http://www.rmla.com)

## Llama Fiber: A Realm of Possibilities

There's more to these camelids than you might think; what a variety!

By Dr. Annamarie Hatcher

RMLA wishes to thank the following individuals for their permission to reprint this article and photos.

- *Spin Off Magazine*
- Author: Annamarie Hatcher
- Laura Rintala, Managing Editor, Long Thread Media
- Photographer Vick Barylak, Misty Morn Llamas in Ontario, Canada



**Misty Morn's Just North of Amazing—call name: North. This fella got rave reviews from all over the United States and some llama folks from Europe. Phenotype: Suri. Photos by Vick Barylak and courtesy of Karen Caldwell, Misty Morn Llamas unless otherwise noted.**

In my regular visits to the local yarn shop where I often indulge in a little tactile therapy, I have noticed that many luxury blends include “baby llama.” I was intrigued, having the impression that llamas were guard animals that ensured the safety of fiber-bearing alpaca flocks. To satisfy my curiosity, I searched out llama fleeces, with which my friend Barbara Kelly-Landry, my Ashford spinning wheel, and I could experiment.

I was a bit shocked to find out that, according to the Llama Canada website, llama and alpaca fibers are sometimes considered the same commercial product in South America, where the species originated. The finer fiber is sold as alpaca and the coarser as llama, irrespective of which animal it came from.

### The Search for “Real” Llama

Some llamas produce fleeces similar to the woolly huacaya alpaca. However, fleece quality is less of a sure thing with llama. The large variation in fleece characteristics is due to two factors: First, most animal-husbandry efforts over time have not been oriented toward fleece quality, so there is large variation in those genes that control fleece characteristics. Secondly, all four species of New World camelids can readily interbreed. That lovely “alpaca” fiber that you purchase may come from an alpaca, llama, or anything in between.



Left, Photo by Matt Graves: Silky llama locks from Misty Morn Llamas. Right, Photo by Vick Barylak: Kornerstone’s Lucky Ace—call name: Ace—is 50 percent Argentine.

I wanted to be sure that Barbara and I had “real” llama fleece to work with. My research led me to Misty Morn Llamas in the Ottawa Valley, Ontario, where Karen Caldwell raises silky, Argentine, and suri llamas. Karen’s sole interest is to breed llamas and save bloodlines for the future. Her breeding stock is registered and microchipped. Karen sent me a fleece from one of her silky llamas, and our adventure began.

There are two basic types of llama, the *ccaras* (translated “without hair”) and the *chakus* (translated “woolly”). The *ccaras* are the more common, sometimes called “classic,” and are used as beasts of burden. The *chakus* are single-coated animals with soft fibers, thicker fleece, and hair that falls over their eyes.

North American llama fleeces vary, but there are four main categories. The first is the *ccara*, a double-coated llama, which has more guard hairs and less woolly fiber in the shorter undercoat. This fleece must be dehaired before spinning, and the undercoat may be a great fiber to spin.

The other types of llama fiber are variations of the *chaku*, which is kept mainly for its wool. The second fleece type is the silky, which is slippery to the touch and lustrous. Suri is also lustrous and slippery to the touch, but the fiber twists into distinct strands and is quite heavy and drapery when knitted. The fourth type is huacaya, which is a single coat of fine, dense fiber that



Left: Misty Morn’s Diamond Frost. Phenotype: Silky. Right: The formal name for this stud is MDL-AB Flashy Cordero. Call name: Cordero. Phenotype: Suri.



has lots of loft or crimp. Some guard hairs can be found in any of these three types, but some breeding programs over the years have resulted in animals with very fine guard hairs that usually don't have to be removed before spinning.

### **Fleece Quality: More Than Just Diameter**

The quality of fleece is often judged by the diameter of the fibers measured in microns. As a general comparison, the fine Merino fiber that we are used to spinning generally falls in the range of 20 to 22 microns. Most alpaca fiber measures 20 to 35 microns, and llama undercoat ranges from 20 to 40 microns. By contrast, the very fine, highly prized, and expensive guanaco fiber is between 14 and 15 microns. Vicuña measures 12 to 14 microns, similar to cashmere.

The diameter of a fiber is only one of the characteristics that influence its value to a handspinner. Scale frequency and cuticular height may also affect how the fiber behaves. Fibers of similar diameter such as Merino, alpaca, and llama may differ significantly because of crimp or the construction and frequency of scales on the fiber's surface.

In a study of 60 kids—20 huacaya, 20 suri alpacas, and 20 chaku llamas—a group of Italian scientists led by Dr. Alessandro Valbonesi found that llama fleece is clearly distinguished from both alpaca types, having the highest percentage of largest fibers and the highest percentage of fibers with more than nine scales per 100 microns of fiber length. The cuticular scale frequency for llamas and alpacas resembles that for wool (10 to 12) but is significantly higher than cashmere or mohair (6 to 8). Even though the diameter and scale frequency may be similar, the cuticular scale height is significantly different between Merino wool (well above 0.6 microns high) and llama and alpaca (less than 0.4 microns high).

As Barbara Kelly-Landry and I began this adventure with llama fiber, our spinning friends asked us, “Why?” After our very satisfying experiments spinning and blending, we are asking, “Why not?”

Interested in learning more about llamas and their experiments with fiber? Check out the [Winter 2022](#) issue of *Spin Off*.

### **Resources**

- Cowie, Helen. Llama. London: Reaktion Books Ltd., 2017.
- Llama Canada, [llamacanada.com](http://llamacanada.com).
- Misty Morn Llamas, [mistymornllamas.ca](http://mistymornllamas.ca).
- Robson, Deborah, and Carol Ekarius. The Fleece & Fiber Sourcebook. North Adams, MA: Storey Publishing, 2011.
- Valbonesi, Alessandro, Mijail Gonzales, Marco Antonini, et al. “Comparison of Fiber and Cuticular Attributes of Alpaca and Llama Fleeces.” *Textile Research Journal* Vol 80 (4) (February 2010): 344–353. [doi.org/10.1177/0040517509337634](https://doi.org/10.1177/0040517509337634).

**Annamarie Hatcher**, PhD in Zoology from the University of Western Australia, is a freelance science writer and is studying to be a Master Spinner after 46 years of hobby spinning. Her interest in llama fiber for spinning began as an assignment for her Master Spinner program.



See you next time!!