



### IN THIS ISSUE

- Llamas in the UK
- Peruvian Tapestry
- Alpaca Mummies
- BioWorma
- Alpaca Homewares
- AAA National Show

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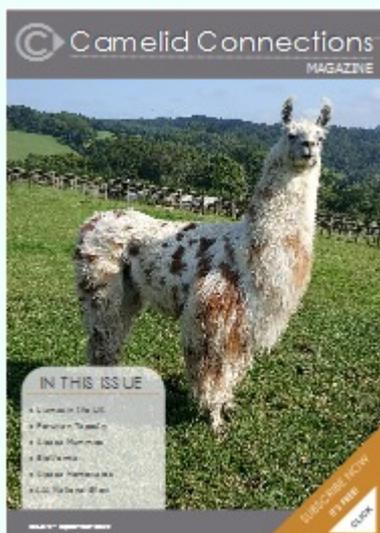
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# Welcome to Camelid Connections

We hope you enjoy this Spring issue although it is a bit difficult to get too excited about Spring with still no rain in most places around the country. I have just returned from a holiday in the Kimberleys and even Mitchell Falls and the water courses on the Gibb River Road are bone dry.

In this edition have a look at the beautiful tapestries by one of Peru's National Treasures. Would you like some original artwork for your walls? Some lovely work for sale on his website.

Is Bioworma the way to go for the future, instead of using chemicals to control worms? Read all about it and decide whether it is for you – would be great to cut chemical use.

We have a great giveaway in this issue with three sets of Macca books to go to three lucky readers who enter the competition. Great for all those mums and grandmas whose little ones enjoy the Macca books and a great promotion for our industry. If you have no small children to read them to, your local community group would love them as a raffle or lucky door prize for one of their functions.

We have also featured an article produced originally in 2001 all about the amazing alpaca mummies discovered in Peru & we have been lucky enough to have the famous archeozoologist Dr Jane Wheeler give us an update which you can read at the end of the article.

We have a round up of all the action at the Australian Alpaca Association national Show, animals, craft & workshops.

If you are after some homewares featuring alpaca then you may enjoy seeing some of the latest on offer in our 'Spring Homewares' section starting on page 36.

## Meet The Team



**Esme Graham - Editor**

My husband and I have been breeding suri alpacas for the past 20 years, I have been heavily involved with both regional committees and the national board of the Australian Alpaca Association for a number of years.

My major interest has been in marketing and education and to this end I was editor of Alpacas Australia magazine for over six years.

I hope that the experience I have gained editing Alpacas Australia can be extended to educate and inform a wider range of alpaca and llama breeders who are not necessarily association members.



**Julie McClen - Designer/Editor**

A breeder of ultrafine Huacaya alpacas for over 18 years, I have a passion for fine fibre and the genetic connection to the most diminutive and finest of the camelids - the wild Vicuna.

I strongly believe that education in any industry is the key to success, so with Camelid Connections we hope to provide interesting and informative articles to assist all camelid owners in getting the most out of their animals and businesses.

I also own Oak Grove Graphics a web and graphic design agency which is producing this magazine, and also allows me to connect with many different people in the camelid related world through my design and web work.

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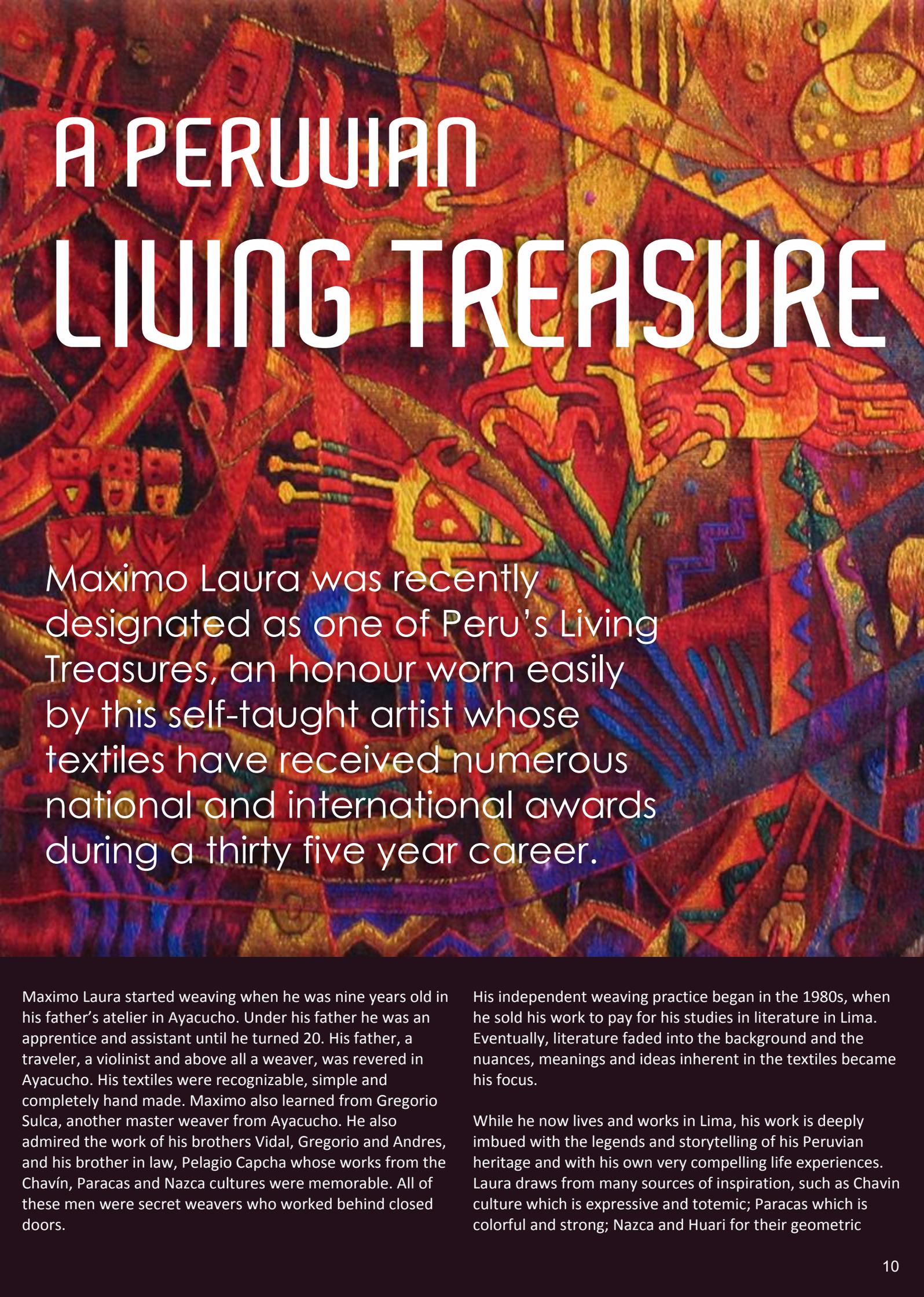


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# A PERUVIAN LIVING TREASURE

Maximo Laura was recently designated as one of Peru's Living Treasures, an honour worn easily by this self-taught artist whose textiles have received numerous national and international awards during a thirty five year career.

Maximo Laura started weaving when he was nine years old in his father's atelier in Ayacucho. Under his father he was an apprentice and assistant until he turned 20. His father, a traveler, a violinist and above all a weaver, was revered in Ayacucho. His textiles were recognizable, simple and completely hand made. Maximo also learned from Gregorio Sulca, another master weaver from Ayacucho. He also admired the work of his brothers Vidal, Gregorio and Andres, and his brother in law, Pelagio Capcha whose works from the Chavín, Paracas and Nazca cultures were memorable. All of these men were secret weavers who worked behind closed doors.

His independent weaving practice began in the 1980s, when he sold his work to pay for his studies in literature in Lima. Eventually, literature faded into the background and the nuances, meanings and ideas inherent in the textiles became his focus.

While he now lives and works in Lima, his work is deeply imbued with the legends and storytelling of his Peruvian heritage and with his own very compelling life experiences. Laura draws from many sources of inspiration, such as Chavin culture which is expressive and totemic; Paracas which is colorful and strong; Nazca and Huari for their geometric



forms; and Chancay for its sobriety and linear spirit.

Since his first exhibition at the Cultural Centre of Buenos Aires, Argentina in 1985, works of Maximo Laura have been in over 140 exhibitions in more than 29 countries (China, USA, France, Italy, Poland, Belgium, Australia, Cuba, Argentina, among others), with solo exhibitions at the Musée de Bibracte (France), the Smithsonian's National Museum of the American Indian (USA), the Textile Museum (USA), the Museum of the Americas (Costa Rica), the Museum of Decorative Arts and Design (Latvia), the Craft Museum of Finland, among others.

The tapestries are made with different fibres depending on the colours. Maximo used to use mainly alpaca and alpaca blends and leaned more towards earthy tones for many years, but in the last decade his palate has leaned towards more intense and vibrant colours, and for these tones, he uses synthetic fibres. He doesn't use wool, but the warp for all of the tapestries is made from cotton.

## Creation of a Maximo Laura Tapestry

When visitors come to the studio a common question asked is: how are the tapestries made?

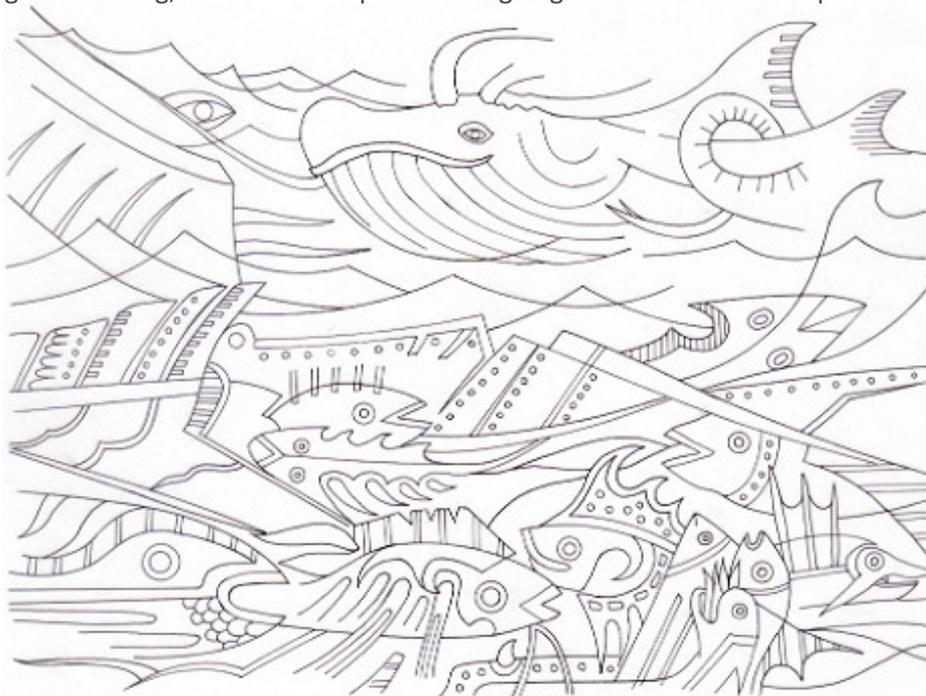
For example, the tapestry below this paragraph is what Mr. Laura calls a Mural Tapestry and it has a size of 5 x 7 feet (176 x 400 cm). The weaving time for a piece of this size is of 6 – 8 months. During a visit we are able to share the whole process in person so through this page we would like to share with you the steps to creating a Maximo Laura Tapestry.



### 1. Drawing Process

All tapestries by Maximo Laura start as a small drawing on a sheet of paper. Mr. Laura works and organizes his designs by series or themes, so depending on the theme that he is currently working on, he might develop a drawing about Andean musicians, about sea life or about Andean mythology. There are a number of themes that he likes to explore, among them we can find: musicians, sea life, mountains, birds, the jungle, landscapes, animals, Andean mythology and symbols.

The creation process for a tapestry can take from three to many months, depending on the size and complexity of each piece, so while working on the drawings, Mr. Laura also has to have in mind the technical complexities that will have to be worked in the tapestry while making the drawing, as a more complex drawing might need more techniques and might take more time to create.



## 2. Painting Process

Once the design has been drawn, Mr. Laura continues with the colouring of the design, which is done by Mr. Laura with colour pencils or with a computer as we can see below.



## 3. Interpretation of Colour

Once the line drawing and coloured image are ready, the design will go to the colour laboratory where a specialist will hand-blend the colours to create what Mr. Laura calls “butterflies” of yarn, which will be the yarn used to weave the tapestry. Each “butterfly” is created by hand-mixing single or multiple solid colour threads to match the required tones of a tapestry, creating the bright and vibrant colour combinations and tones which Maximo Laura is known for. This special process is also the reason why, if one sees a specific point in a Maximo Laura Tapestry, one will always find a variety of colours in a very small space, making it very hard to find solid colours within the piece.



#### 4. The Cartoon

The small line drawing is then drawn or printed to the scale of the tapestry, creating what is known as the “cartoon”. The cartoon will be transferred to the cotton warp threads on the loom to guide the weaver. The cartoon also specifies the sections of the tapestry where different textures and techniques will be included so it serves as a guide for the weaver.

#### 5. Weaving Process

All Maximo Laura Tapestries are handwoven on a floor loom by a selected group of Master Weavers who have been trained by Mr. Laura on his own techniques. In Peru, tapestry weaving is an art that is transferred from generation to generation through family, so most of the Master Weavers who work with Mr. Laura have a background in traditional tapestry and have been trained by Maestro Laura to learn his techniques and process.

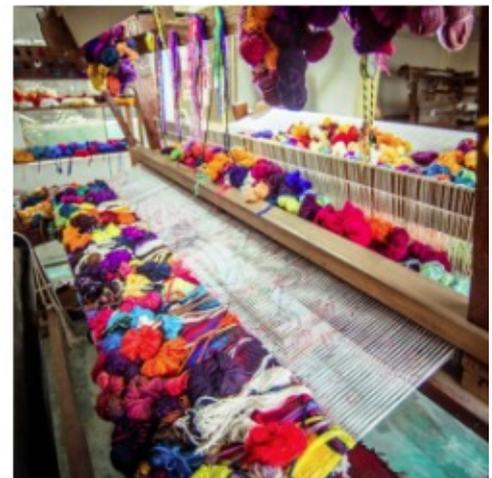
Row by row, the colours and textures emerge into images under the careful supervision of Maximo Laura. Some tapestries might take weeks to create, others might take months, but they all take the patience and attention to detail of experts to become a piece.

#### 6. Stretching and Cleaning

After the weaving process is completed, the tapestry is taken out of the loom and goes through a cleaning and stretching process. You can see in the photograph below how the back of the tapestry has very long threads hanging during the weaving process, so those threads are lowered and the tapestry is cleaned. The stretching process helps with the elasticity of the tapestry, as there is a change of tension when the tapestry is taken out of the loom, by stretching the piece the final size will be defined.

Once the tapestry has been cleaned and stretched, a Certificate of Authenticity will be stitched onto the back of the tapestry, signed by Laura and the piece will be ready to be sent to its owner or gallery.

Maximo Laura’s beautiful tapestries can be viewed and purchased online at [www.maximolaura.com](http://www.maximolaura.com) and as one of the testimonials says – “There are so many layers of experiencing Maximo's tapestries. At a distance, they are bold and imaginative and always manage to stir a sense of connection to something that is both grounding and cosmic. Overtime, these tapestries have delighted me with endless discoveries of details in their form, texture, and colour that are sometimes humorous, sometimes perspective-changing, and always thought provoking.”





# Why Camels?



By Megan Williams – The Camel Milk Co.

## Do you own a camel or are considering owning one?

Like any animal there is so much to learn, most of it very exciting. Camels make great pets. They house well with other animals like sheep, goats, cows, horses etc. They are soft footed, so they don't pug up the ground like a hooved animal would. In the summer they shed their winter coats and are fantastic for weed control, eating just about anything. But best of all they are very low maintenance.

Chris and I did a two day camels handlers course in Victoria back In 2014 and soon after our three female camels arrived. We had been told so many things about camels and we were about to put this to the test.

We learnt very quickly about fencing. While some parts of our farm still have barbed wire, we highly recommend not to have it on your camel's fencing. Controlling a large animal to assess damage from a barbed wire fence can be very difficult. Camels like to sit on all fours and graze with their necks reaching out. If the bottom wire is too high they can crawl right under. While at the same time, if the fences are too low they step right over. We use seven strand fences with the bottom wire approximately 30cm off the ground and the top wire approximately 1.2 – 1.3m from the ground. The ideal is to have the bottom, top and middle as electric fencing. Another thing to consider when housing a camel is trees. Camels can ring bark trees and pull down large limbs. We put fencing around all trees that are in camel paddocks.

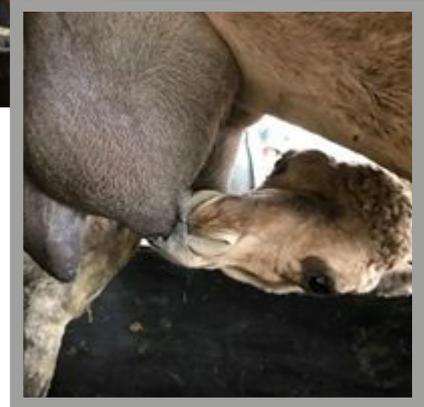
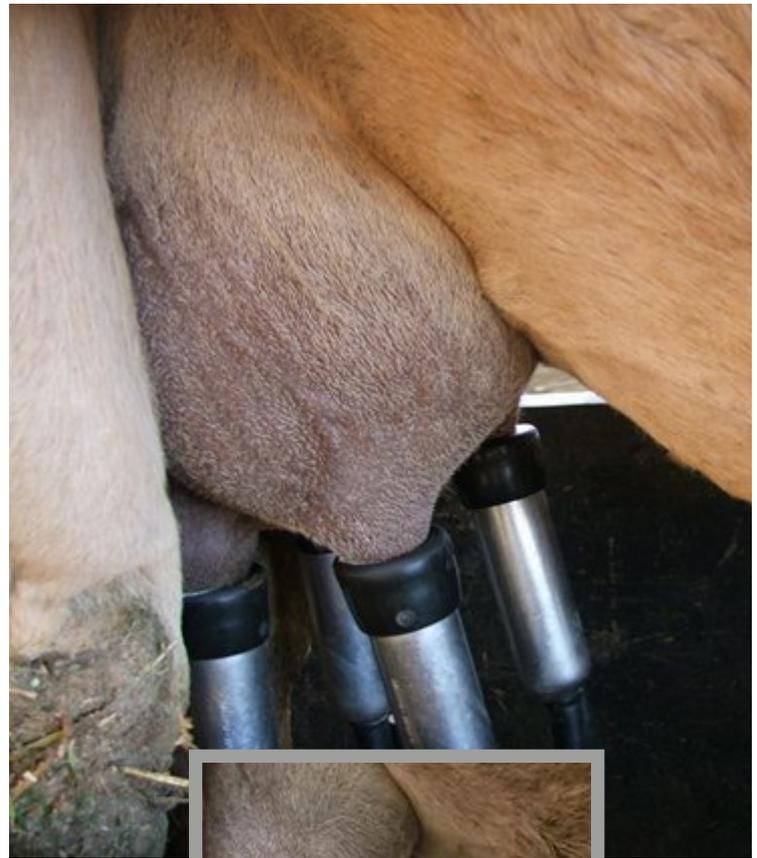


While camels are hardy animals and can go weeks without food and water. Unless you are an experienced handler we would not recommend trying this.

Camels are browsers and would often prefer shrubs or small tree as their main diet. We farm our animals in prime dairy land, so our camels have unlimited access to paddock grass, oaten hay, water and coarse loose salt. We feed Lucerne to the milkers every day. We move the animals regularly so they always have access to fresh green pick. A non lactating camel would eat around 8kg of dry matter per day, where a lactating camel would eat double that.

Camels also do very well on Salt Bush, Acacia and Prickle Bush. What is available depends on your location. There are a number of plants around Australia that camels cannot eat. Some plants can cause long term effects on internal organs and some are fatal. Some of the plants which need to be avoided are – Lantana, Oleander, Daphne, Eromophila\*, Ironwood\*, Gidyea\*, (\*Ref – McKnight 2008) Camels can also suffer from Rye grass staggers which affect alpacas and llamas as well as cattle and sheep.

Camels are pregnant for 12-14 months and usually allow their calf to suckle for 18 months. Camels are very good calvers. Out of the hundreds we have had calve we have only needed to assist once. We find that people are usually too eager to intervene, sometimes having a negative effect and stressing the animal even more. Babies are born feet and head first. The mother usually separates herself from the herd a few days before giving birth. She shows all the obvious signs. Large udder, swollen vulva, swishing of the tail and sometimes drips milk.





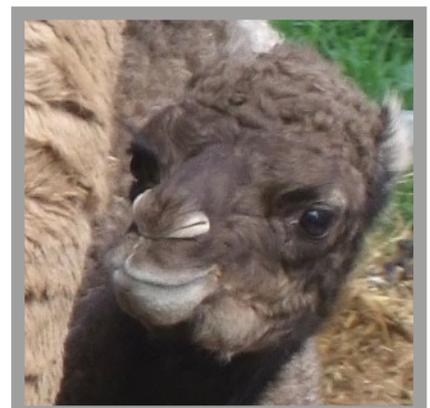
Male camels come on rut in the breeding season. There can only be one male with a herd of females. If you have two they will most likely fight, and in most cases one gets very injured or killed. While male camels make great pets and most of the time are “gentle giants” they can be very dangerous when on rut. Many human deaths around Australia and the world have been from a trusted pet bull while on rut. We sell most of our males once they are weaned from their mother. We sell them intact and recommend that if he is not used for breeding to have him castrated between the age of 3 and 5 years old. There are many views on the right age to castrate, however if they are cut too young they tend to grow very leggy.

It’s always hard to know what vet to use when it comes to camels. There are no registered drugs for camels in Australia so all drug’s proscribed by a vet are used off label. However, if you do have a sick or injured camel it’s always good to

know which vet you are going to call, as the dosage for camels is completely different to other animals. For instance, to sedate a camel you would use no more than what is used on a dog. If a vet is not up to date with camel practices they can easily (accidentally) kill the camel.

If you are wanting to train your camels for riding we recommend doing a camel handlers course. The knowledge you will gain from an experienced camel handler is priceless. There are only two that we know of in Australia that do this. Peter Hodge - Peter Hodge Camel Hire and Tara & Russel - Camel connections.

There are many experienced handlers around Australia and if you are lucky enough to spend time with any of them it would be very beneficial.



# Do you have your PIC number?

A PIC is an eight-character code allocated by the state department of agriculture (or an equivalent authority in each state or territory) to identify a livestock-producing property. The PIC forms the basis of Australia's food safety and traceability programs and is used in cases of disease outbreaks, bushfires and animal emergencies.

Individuals must, under law, have a PIC if you own or keep 1 or more cows, sheep, goats, pigs, bison, buffalo, deer or animals from the Camelidae family (e.g. alpacas, llamas) or the Equidae family (e.g. horses, ponies, donkeys, mules, zebras), or more than 100 poultry (i.e. domesticated fowl, chickens, ducks, geese, turkey, guinea fowl, pigeons, quail or pheasants) or 10 emus or ostriches.

Each state and territory has different rules regarding PIC numbers so view the website for your relevant state body to find out what their requirements are.

## NSW

<https://www.lls.nsw.gov.au/livestock/pics>

## ACT

<https://www.environment.act.gov.au/parks-conservation/plants-and-animals/rural-services/property-identification-codes-pics>

## Victoria

<https://pic.agriculture.vic.gov.au>

## Tasmania

[https://dpiwwe.tas.gov.au/agriculture/animal-industries/identifying-selling-moving-livestock/about-livestock-identification/property-identification-code-\(pic\)-registration](https://dpiwwe.tas.gov.au/agriculture/animal-industries/identifying-selling-moving-livestock/about-livestock-identification/property-identification-code-(pic)-registration)

## QLD

<https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/pic>

## South Australia

[https://www.pir.sa.gov.au/biosecurity/animal\\_health/property\\_identification\\_code\\_pic](https://www.pir.sa.gov.au/biosecurity/animal_health/property_identification_code_pic)

## Western Australia

<https://www.agric.wa.gov.au/livestock-biosecurity/stock-brand-and-pic-register-search-guide>



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Our herd average fleece stats are 21.6, 4.5, 21.4, 93.1 this is over the entire herd and includes a range of older animals that have served us well in the past. Over 60% of the herd fall in the fine/superfine/ultrafine range with a body score of 3.5+. Histograms available on request. We are happy to negotiate realistically on multiples and with colours from white, light to dark fawn as well as grey there is something for everyone. Sire lines that we have used are Sonoma, Highlander, Tijera Hugo and Prince John with the focus on lowering SD, holding length for a lifetime and maintaining a stable 18 – 22 micron that doesn't blow out as the animal ages.

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IAR: 96942 | Colour: Solid L/Fawn  
DOB: 4 sept 20 | CERTIFIED  
Price: \$11000 inc gst

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**Signature Pure Revelation**

IAR: 219154 | Colour: Solid White  
DOB: 14 May 2016 | NOT CERTIFIED  
Price: \$1500 + gst

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**Signature Original Sin**

IAR: 219178 | Colour: Dark Grey  
DOB: 9 June 2017 | NOT CERTIFIED  
Price: \$1500 + gst

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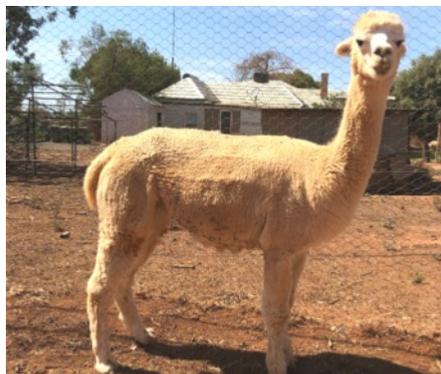
## FEMALES FOR SALE



**Signature Prelude**

IAR: 219206 | Colour: Medium Fawn  
DOB: 5 Aug 2018 | OPEN  
Price: \$660 inc gst

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**Molonglo Zuleika**

IAR: 79220 | Colour: Solid White  
DOB: 4 April 2004 | OPEN  
Price: \$500 + gst

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**Signature Obsession + cria**

IAR: 219161 + 2 | Colour: S/White  
DOB: 10 July 2016 | OPEN  
Price: \$550 inc gst

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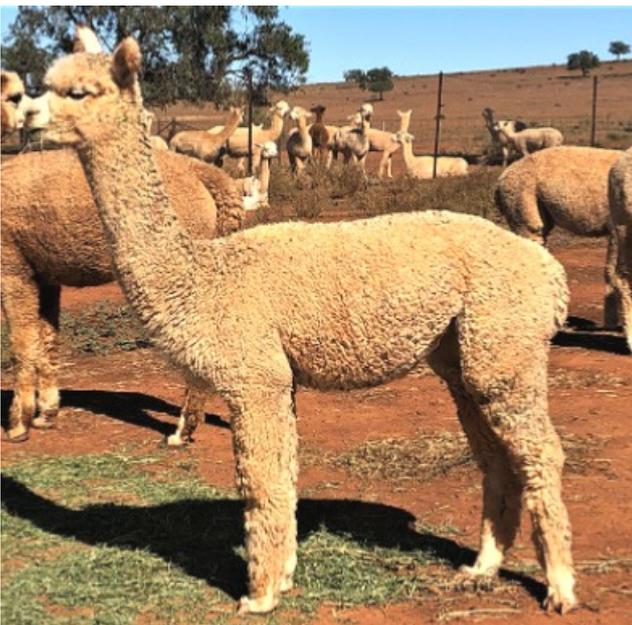
**PACKAGE Signature High Jinx + Paragon**  
IAR: 169924/219196 | Colour: Solid Whites  
DOB: 27 Apr 2018/ 28 Feb 2012 | OPEN  
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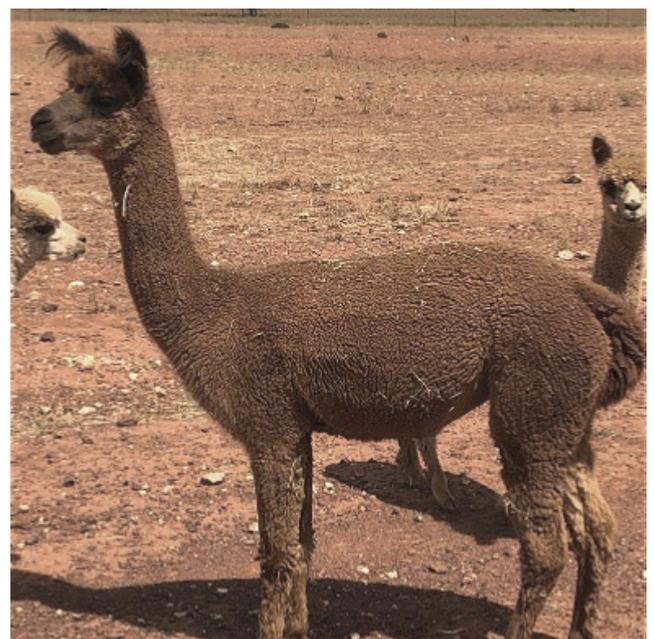
**PACKAGE Signature Masquerade + Last Dance**  
IAR: 219156/188446 | Colour: Dark Fawns  
DOB: 10 Jun 2016/28 Jun 2015 | OPEN  
2 Allin Capac granddaughters Price: \$1100 + gst

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**Signature Pointoise**  
IAR: 219202 | Colour: Solid White  
DOB: 4 Sept 2019 | OPEN  
Price: \$550 inc gst

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**Signature Damsel fly**  
IAR: 219136 | Colour: Dark Brown  
DOB: 30 March 2016 | OPEN  
Price: \$900 + gst

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# BioWorma

Supplied by International Animal Health Products

BioWorma and Livamol with BioWorma contain a natural strain of fungus which is safe, non-toxic and residue free, and has been developed over many years by the Australian CSIRO, in collaboration with International Animal Health Products.

Two published papers on the field evaluation of the active ingredient, *Duddingtonia flagrans* IAH 1297, have been published in *Veterinary Parasitology*, one on sheep and the other on horses, cattle and goats, the company says. Both products have recently been certified organic as allowed inputs.

IAHP has commercialised the technology. Chris Lawlor, head of IAHP, says it's taken 20 years of painstaking R&D to reach market launch, but now these products have the potential to save clients time and money, both through limiting stock losses, and also reducing the need for chemical drenches.

BioWorma and Livamol with BioWorma can be used for cattle, sheep, goats, horses, and other grazing animals including deer, alpacas and zoo animals. They both contain the spores of *Duddingtonia flagrans* IAH 1297. This is a non-chemical biological control for the free-living stages of parasitic gastrointestinal nematodes of grazing animals, which acts by substantially reducing the numbers of infective worm larvae emerging from manure onto pasture.

When fed to animals, the thick-walled spores remain inert, having no effect within the host animal, and resist digestion,

passing through into the manure. There they germinate and form trapping organs that capture, paralyse and consume emerging infective worm larvae, including chemical/anthelmintic multi-resistant larvae.

“The crucial re-infestation stage of the parasites' life cycle is interrupted, reducing the amount of re-infection from contaminated pasture. This interruption of the life cycle significantly reduces parasitic nematodes on pasture,” Lawlor says.

It works particularly well under rotational grazing. Unlike nearly all other methods for parasite control in livestock, which are aimed at the parasitic stage within the host animal, biological control methods can be targeted at the free-living parasitic stages on pasture.

Lawlor says CSIRO found a fungus on pasture in a survey in the mid-1990's that offered a whole new way to combat worms, by capturing and killing the infective worm larvae, breaking their life cycle. “Of the 25 different strains of *Duddingtonia flagrans* they found, they selected out the most robust which became known as IAH 1297. “*D. flagrans* is a ubiquitous fungus, found naturally in the environment all around the world.” International Animal Health Products began collaboration with the CSIRO on this project in 1997 and took charge of the commercialisation in 2004. The next two decades involved 19 placebo-controlled field trials and

three different safety studies, as well as testing for everything from environmental effects, toxicology and residues through to the simple questions of how to harvest thousands of tonnes of *D. flagrans* spores.

“We had to work out what we thought the dose was going to be, feed it to the animal, then someone has to work out how much of the fungus end up in the manure. “Does it pass through the gut – and if it does, does it get damaged on the way through? There are so many issues before you even get to a dose rate. When you’ve got that dose rate sorted, the next thing is to come up with a protocol for feeding it to animals.”

Internal parasites are a major animal health challenge and cost in farming systems and there is widespread drench resistance in horses, sheep, cattle, deer, goats and alpacas. Lawlor says recent studies attribute losses in the tens of billions worldwide.

There are NO anthelmintics registered for use in alpacas. Anthelmintic resistance is recognised as an important threat to the health, productivity and welfare of alpacas and llamas globally. Resistance and suspected resistance of gastrointestinal nematodes to closantel, moxidectin, ivermectin, fenbendazole, monepantel and a combination of abamectin, albendazole, closantel and levamisole has been documented on Australian alpaca farms (Jabbar et. al 2018).

“It is evident that the rate of development and registration of ‘new’ anthelmintics is not keeping pace with the rate of emergence of strains of nematodes resistant to available anthelmintics. “We want to see all livestock owners taking chemical resistance seriously by getting their veterinarians involved in their worming program, using chemical rotation and conducting faecal egg counts. “NZ, Australia and the United States are lucky to be the first countries in the world to use these new innovative products,” Lawlor says. For more information visit [www.bioworma.com](http://www.bioworma.com)



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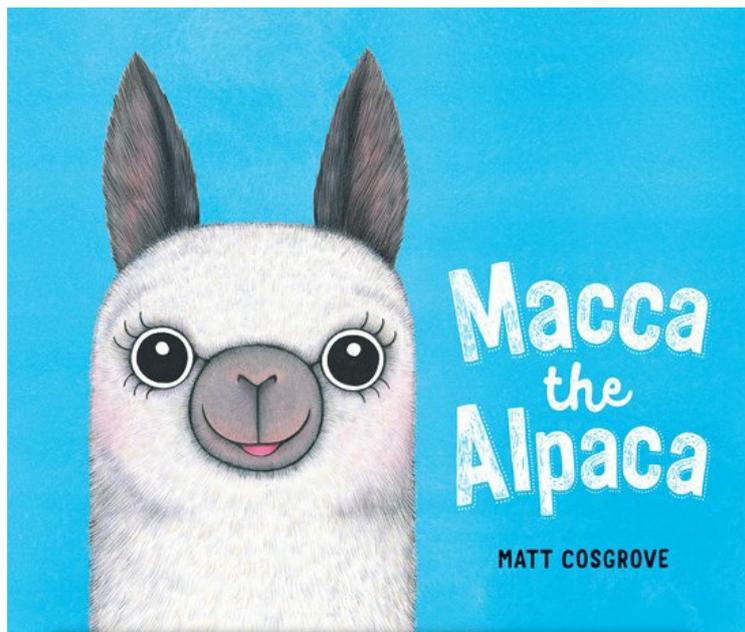
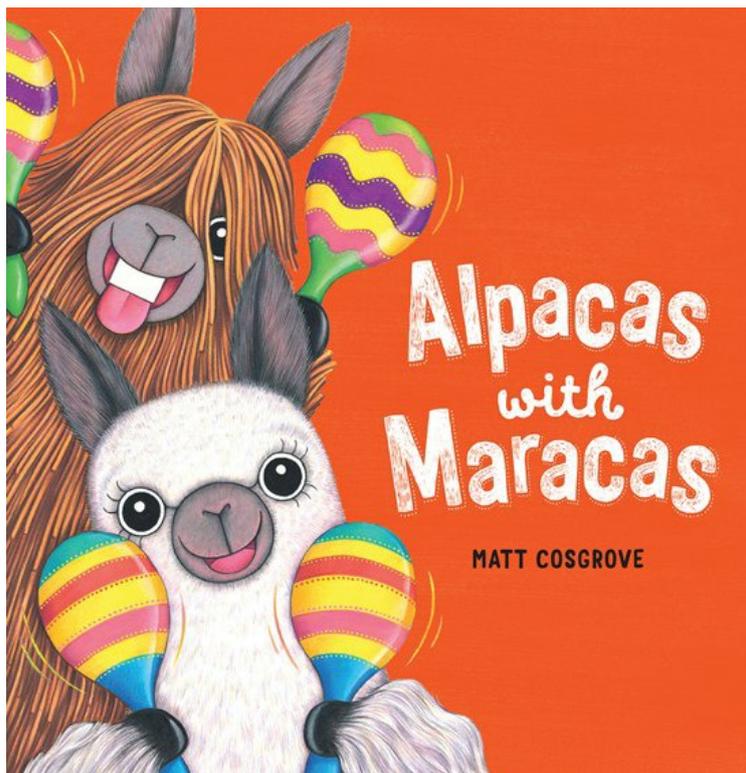
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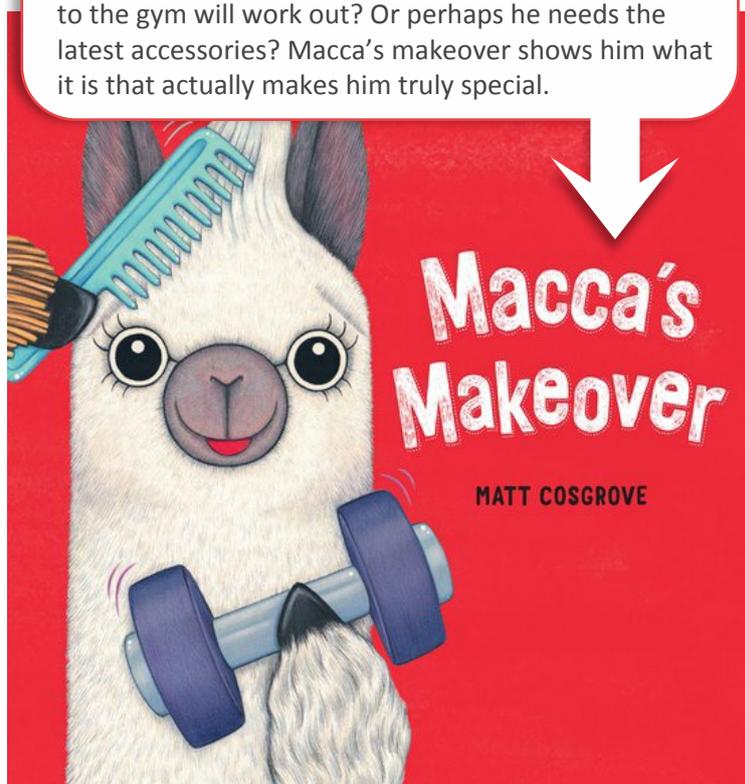
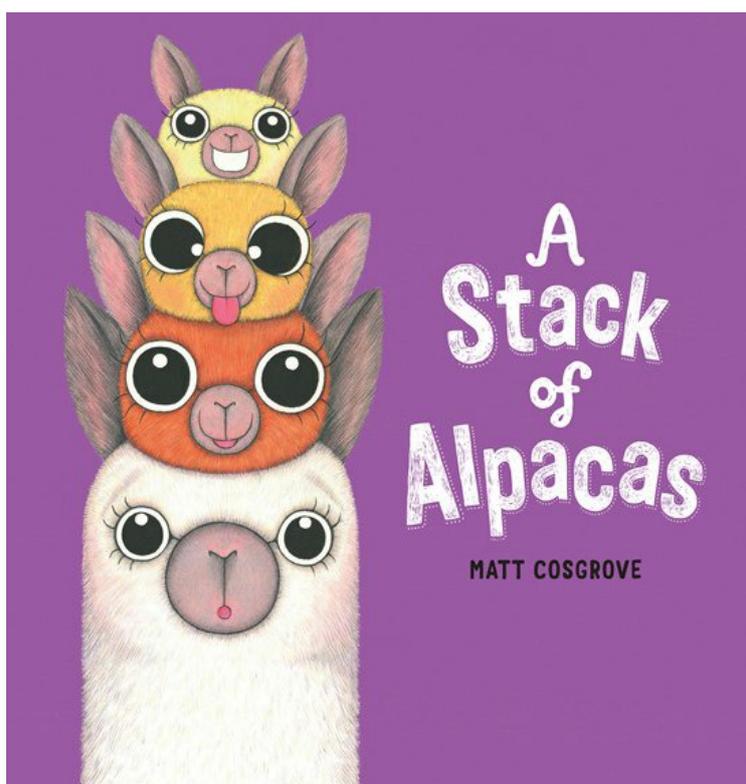
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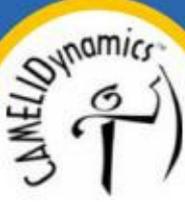


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# Breeding Llamas in the UK

By Annie Austen – Watertown Llamas



During the last century very few llamas were imported into the UK and most lived in zoos. The genetics were quite limited, so much so that some breeders had to cross their female llamas with male guanacos in order to avoid further in-breeding.

The vast majority of llamas in Britain were the short fleeced or ccara variety. With the advent of the internet, some of the UK breeders became more aware of the variety of different types of llamas available, not just in South America but also in Europe where more recent importations had been taking place. One such English breeder was Paul Rose, and he introduced several fairly prolific heavy woolled or lanuda

llamas from Europe into his UK herd and the offspring from these busy boys began to make an impact on the very small national herd. For me the appeal of these lanuda llamas was undeniable. Like all llamas they have the ability to carry many different colours on one animal, but the fleece has length and lustre, and the coverage is comprehensive from their beards and top knots right down to their hairy toes!

Generally, they are shorter and stockier than ccara llamas, but with very heavy bone. When you consider the history of their domestication in South America it's easy to understand why and how this has come about. For me the ultimate example is the Argentine llama, bred to be a true allrounder, in an area where there are no alpacas or other cattle to speak of. The breed therefore has to be strong, heavy boned and sure footed in order to work hard as a pack animal over difficult terrain, and the Argentine has really big feet! He also needs to be calm and biddable for this purpose, so any who

aren't of good temperament go straight in the pot to fulfil another use! The fibre must be copious but fine enough to make garments, with little or no guard hair and a rapid re-growth. Generations of selective breeding for these traits has resulted in a most appealing and reliable llama who interacts well with people, provides a great fleece for hand spinners, looks great in the show ring, makes a superb trekking llama but is also uniquely wonderful as a therapy animal. What's not to love!

Very different in build is the equally special suri llama, tall and graceful with long draping locks "like falling rain", the Aymaran translation of the word "suri." Contrary to popular belief, the suri llama is not a llama/alpaca cross and existed in its own right before the days of the Spanish conquest, as DNA testing and mummified remains have proven. The suri llama has great carriage, extending his neck very well when he moves, and it is the sight of the suri in motion that is so spell-binding. Perhaps the two most influential imports into North America have been Peruvian Keno and Kantu, and the most expensive ever sold at the height of llama frenzy was Newevo at over \$200,000 !

I've been lucky enough to own llamas in the UK for nearly 15 years, with my first group being a motley crew of very feral unhandled females. All bar one were ccara llamas which was very much the norm back then. The UK herd had very limited genetics in the 20th century with most llamas coming, as mentioned before, from zoos. The majority were short fleeced and due to the scarcity of unrelated males some females were even cross bred with guanacos. One of my group was a woolly llama however, and I was excited to find that a leading UK breeder, Roseland Llamas, had imported quite a few tampusis, or woolly llamas, from Europe, including some lanuda, the very heavy woolled variety, whose genes had come directly from South America. Having decided that my heart lay with woollies I was thrilled to acquire several Roseland llamas when the owner, Paul Rose, retired, but equally he also inspired me to look to Europe too.

European breeders had been more adventurous than we Brits, and several had imported llamas direct from Chile. These llamas were extremely calm and biddable as well as beautiful, with some having very fine fleeces, often single coated and devoid of any guard hair. I very quickly found myself adding some more woolly llamas to my



Demario, suri stud import, part Argentine

herd, purchasing from breeders in Switzerland and Italy, and even acquiring some Chile imports.

Thanks to the internet and social media it soon became even easier to find out more about the origins of South American llamas, including Chilean, Bolivian and my favourite, the wonderful Argentine llama. North American breeders were quick to discover their virtues and lost no time in importing a starter herd, which was very fortuitous as the Argentine border was soon to close and has never re-opened for further exports.

Whatever you may feel about the ethics behind it, it was really thanks to an extensive program of embryo transfer that the Argentine llamas were able to reach any kind of numbers in the USA. Whilst there are some part or half Argentine llamas in Europe as far as I know nobody has a full Argentine, and to be registered with the prefix "Argentine" both parents must be registered as full Argentines themselves, traceable back to the original imports. You can imagine my excitement when I had the good fortune to import from North America one full Argentine and two half Argentine males to compliment my half Argentine females acquired from Europe!

As part of the same importation I also added some truly graceful Suri llamas, tall creatures with draping locks that sway as they move. Undoubtedly, when they became popular in the USA some breeders may have tried to "create" some suris through crossbreeding with alpacas but there is nothing alpaca-like about the finest examples.



Lo Bianco - suri stud import

With only a limited number of llamas available in the UK there are two challenges facing breeders, one being to achieve a good genetic diversity but the other being to preserve, if possible, the purity of the breed type.

I have chosen to specialise in the heavy woolled and the suri but fortunately we also have some other great breeders here who are determined to see the ccara llama go from strength to strength. In the 15 years that I have been breeding and importing the demand for good quality llamas has never been stronger so the future is looking bright for all our wonderful llamas in the UK !



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# SECRETS OF THE ALPACA MUMMIES

Did the ancient Inca make the finest woollen cloth the world has ever known?

By Heather Pringle, Photography by Grant Delin

(first published in *Discover* magazine April 2001 & reproduced with permission of the author)

In November 1533, Francisco Pizarro rode triumphantly into Cuzco, the royal capital of the Inca empire, and took stock of its storied treasures. With just 180 hardened soldiers of fortune at his command, the cunning Spanish conquistador had ambushed—and then executed by strangulation—the emperor Atahualpa, prompting the royal Inca army of 30,000 to retreat. Pizarro, a former foundling and swineherd, could scarcely believe the booty that awaited him. Some of his men had already pried loose golden plaques from the temple of the sun and filled their saddle packs with silver statues. They had stripped golden masks and staffs from the mummified bodies of Inca sovereigns and eyed the vast estates they would soon claim for their own. But Pizarro and his plundering band of adventurers ignored perhaps the greatest treasure of all: the rare and luxurious fabrics that were the foundation of Inca wealth.

The Inca were cloth makers, the likes of whom Europe had never known. Inca weavers made bridges from cords, wove roofs from fibres, and counted their wealth not in scribbles on a page but in patterns of knots on woollen strands. And they wove a woollen fabric from the fleece of the alpaca, a small, slender member of the camel family, that was so soft and alluring it was prized above almost all else in the highland empire centred in what is now Peru. Among the people of the Andes, cloth was currency. Inca emperors rewarded the loyalty of their nobles with gifts of soft fabric made by expert weavers. They gave away stacks of fine woollen textiles to assuage the pride of defeated lords. They paid their armies in silky smooth material. For an emperor intent on glory, as most Inca emperors were, cloth making was a major enterprise of state. The imperial textile warehouses were so precious that Inca armies deliberately set them afire when retreating from battle, depriving their enemies of that which made them strong.



Pizarro and his comrades had crossed an ocean in quest of glittering gold and silver, not fabric. And the viceroys who succeeded Pizarro were similarly oblivious. In the chaos and devastation that followed the Spanish conquest, the soft seductive cloth coveted by Inca royalty disappeared with the Inca themselves. Meanwhile, all across remote Andean valleys, once prosperous villages fell into a poverty that has endured for five centuries.

*Shearing clippers lie forgotten amid a tangle of coarse fleece in a modern Peruvian fibre factory. Nearly half of Peru's alpacas produce fleece that is either unusable or suitable only for rough blankets. But the alpaca mummy (right) had fleece fine enough to make fabric fit for royalty. The alpaca, a two-year-old male, was buried 1,000 years ago with a colour-matched guinea pig offering placed on its chest.*



for the alpaca's fine-fibre gene. "She's worked extremely hard," says English archaeozoologist Juliet Clutton-Brock, the managing editor of the *Journal of Zoology* and one of the world's leading authorities on the origins of animal domestication, "and she's produced some excellent results."

*A typical burial shroud of the Chiribaya people, precursors of the Inca, features elaborate llama icons. Lice clung to llama fleece (below) found in one grave, suggesting that the Chiribaya were canny ritualists who sacrificed diseased or inferior animals to the gods and saved the healthy ones.*



*El Yaral and Chiribaya Alta, two sites where naturally desiccated alpaca and llama mummies were found, are located in one of the driest places on Earth— a coastal desert that receives less than four fifths of an inch of water annually.*

*Graphics by Matt Zang*

The fabled fabric of the Inca was seemingly lost forever until Jane Wheeler, an American archaeozoologist, made a surprising discovery a decade ago while examining some mummified alpacas and llamas that her colleagues had unearthed in the small pre-Columbian village of El Yaral. The ancient animals were almost perfectly preserved, right down to the fringes of their eyelashes. "It was just incredible," recalls Wheeler. "The animals were invaluable, a thousand years old and still intact." When Wheeler later examined skin samples from the animal mummies in microscopic detail, she noticed something more remarkable. The ancient fibres of the alpacas' fleece were as soft as a baby's hair compared with that produced by the alpacas that are ubiquitous in modern Peru. If only Peruvians could resurrect these lost breeds, she mused, they could produce textiles rivaling cashmere and, in the process, lift themselves out of poverty.

Wheeler took up the crusade. She knocked on embassy doors, cultivated Peruvian textile manufacturers, buttonholed politicians, and mustered an international team of geneticists and biodiversity experts. Today Peru is still years away from reproducing those pre-Columbian animals or producing Inca-quality cloth, but Wheeler has clearly proven that her quest is not quixotic. She has established a major alpaca DNA bank in Lima, shed light on the mysterious origins of the alpaca, devised tests for discerning alpaca hybrids from purebreds, and mapped out a project to search

Wheeler, 57 (at the time), is a visiting professor at San Marcos University in Lima and supports her research by stringing together grants. In her small, cluttered office in a veterinary science building, she fumes as she lists some of the recent obstacles she's encountered in her work: recalcitrant Peruvian customs officials who refused to clear the expensive radioactive isotopes she needed for DNA testing; thieves who made off with her camera and best lens; and an absentminded laboratory assistant who blew the power supply of an expensive American machine for analysing DNA by plugging it into a 220-volt Peruvian outlet. Wheeler takes each setback personally. "Sometimes I really feel like quitting," she says, shaking her head.

What keeps her going is a love of Peru and its alpacas. Wheeler's office is just around the corner from a campus clinic that tends to alpacas. Her Peruvian husband, a veterinary pathologist, is an expert on the quarantine of alpacas. Wheeler dines regularly on alpaca meat, preferring it to beef, dresses in alpaca-wool sweaters, and sports an alpaca brooch. Her 4-year-old son Daniel has spent so much time in the company of alpacas that he has assumed some of their manners. When he gets angry, he spits.

Before her encounter with mummified alpacas, however, Wheeler had no inkling that living alpacas would become such a fundamental part of her life. A decade ago, while a professor of anthropology at the University of Colorado at Boulder, she was analysing ancient animal bones in Peru when archaeologist Gloria Salinas invited her to see El Yaral's dusty mummies. Buried beneath house floors for nearly 1,000 years, the alpacas and llamas had grazed El Yaral's pastures 500 years before the rise of the Inca empire. With

their legs folded under them and their heads craned across their shoulders, they looked like a sleeping herd. For Wheeler, who had devoted her career to counting and measuring tiny fragments of bone, the sight of ancient animals with their nubbles of shorn fleece and their long, lank ears was a shock. "I was really afraid to touch the mummies," she recalls. "I had no experience working with them." Curiosity, however, won out. While ageing and sexing each of the alpacas and llamas, she searched for signs of disease and injury and took tissue samples. Most of the animals were male and under two years of age, and all but one had died from a conchoidal fracture of the skull made by a vigorous blow with a hard object. Almost certainly, says Wheeler, the animals were ritually sacrificed by El Yaral's inhabitants. People in the Andes still sacrifice adult llamas for the gods and bury llama foetuses beneath their houses as sacred offerings.



*Archaeozoologist Jane Wheeler examines a mummified suri, a variety of llama that has virtually disappeared in Peru.*



*The suri was found at El Yaral (below).*



*Holes dug where houses once stood exposed 26 mummified alpacas and llamas among offerings of beads, feathers, and silver plaques.*

Wheeler snipped off bits of skin and fibre from 11 standard spots on each mummy and took them with her on a visit to the Macaulay Land Use Research Institute in Aberdeen, Scotland. There laboratory researchers individually mounted 200 fibres from each sample on slides and measured them by means of a projection micro-scope. As the data rolled in, Wheeler was amazed. El Yaral's animals were remarkably uniform in both colour and fibre size. And their fleece was astonishingly fine. Indeed, some alpacas possessed uniform fibres of 17.9 micrometers— 4 micrometers, or sixteen hundred-thousandths of an inch, smaller in diameter than those of a modern alpaca.

This minuscule difference holds enormous economic implications. Among woollen manufacturers, the finer the fibre, the softer the fabric and the higher the price. Cashmere fibre, for example, measures just 16 micrometers in diameter. As a result, it has become one of the world's most desirable woolens, fetching about \$70 a pound. By comparison, the slenderest alpaca fibre today measures 22 micrometers and commands only \$9 a pound. But even that high quality fibre is uncommon. More than 90 percent of all modern alpaca fleece is considerably coarser, bringing only a few dollars per pound.

Wheeler was completely taken aback by the quality of El Yaral's ancient llamas' fleece as well. In Peru today, llamas possess fibre so coarse and scratchy that it is rarely used for textiles. Most Peruvians employ llamas strictly as pack animals. But the llamas of El Yaral felt silky to the touch and their fibre gleamed lustrously. Wheeler's analysis showed why. Many of the animals had a uniform fleece of 22.2 micrometers, as fine as the best alpaca. Moreover, as Wheeler could see from the unshorn animals, some had been walking fibre factories. One 12-month-old llama, for example, had grown fibres seven inches long— a length only reached in modern animals at 24 months.

Such a desirable combination of traits was unlikely to have come about by chance. Wheeler believes the early Andeans had selectively bred their herds to supply the exact needs of an ancient textile industry. And her theory has been borne out by the calculating way in which families at El Yaral and at a neighbouring site, Chiribaya Alta, chose animals for sacrifice and burial. They seldom slaughtered healthy, sexually mature animals. Instead they culled very young males, a choice that made perfect sense from an animal-breeding point of view.

Only a few top-quality-fibre males were needed as studs for the females in a herd. The remaining males could be safely weeded out and butchered at a young age. "So maybe what we're looking at in the mummies are the animals whose fibre isn't good enough," Wheeler says. "And if these are the animals they sacrificed, they had better ones."

In Wheeler's view, the Inca who later ruled the region were likely to have been just as skilled as the herders of ancient El Yaral. The Spanish chronicles make several brief mentions of their prowess as breeders. The priests of Cuzco, for example, required animals of specific colours for various sacrificial rites, which included slowly starving llamas to death in the city's central square so the gods would hear their screams and let loose the rains.

To supply ritualists with exactly what they needed, Inca breeders raised pure white, black, and brown stock. "Given such rigorous demands," says Wheeler, "it's likely that specific llama and alpaca breeds were maintained."

All Wheeler's research pointed to one conclusion: A critical secret of the wondrous cloth of the Andes lay in the tiny fibres of these animals' coats.

On a sunny austral morning, Wheeler surveys a stone corral filled with the bobbing white heads of hundreds of alpacas. Up since five and plagued by a nasty head cold, she has spent the morning taking a photographer into the mountains outside Arequipa to see a sparse wild herd of vicuña, the smallest of the four camelid species that inhabit the Andes. Frustrated by their wariness, she has stopped on the drive back to check out a large herd of alpacas. Jammed head to tail inside a roadside corral, the fuzzy long-necked animals seem almost to vibrate, making a humming sound curiously akin to the swarming of a beehive. Wheeler watches intently as herders in threadbare jeans begin releasing animals through a narrow gate, sifting out two dozen or so marked individuals. Despite their nearly identical white coats, the milling animals each possess a striking individuality. "If you look long enough," says Wheeler with a smile, "you can see the face of everyone you have ever known in these herds."

In the cold, thin air, the herders wrap their arms around the chosen animals, wrestling them into compliance. Then they half push, half carry them toward a waiting truck that will take them to crossbreed with alpacas in other herds. One of the herders, a local veterinarian, approaches Wheeler. Slipping off his dusty baseball hat, he smiles. "Jane Wheeler," he says, "Jane Wheeler." A note of awe creeps into his voice. "I heard you speak at a conference a few months ago."

What he heard was one of the many pep talks that Wheeler has been delivering lately in Peru. While reporting on the progress of her research, she often sketches out the disasters that befell the lost Inca herds. The early Spanish, she explains, butchered prize alpacas for meat and rounded up entire herds to be sent to the silver mines as pack animals. They introduced foreign germs that may have decimated both the animals and their skilled tenders. Without the benefit of the breeders' knowledge, the surviving Andeans ended up applying traditional sheep-rearing practices to camelids. They ran alpaca and llama males with the females all year round, thereby inhibiting the males sexually. Alpaca and llama herds dwindled.

Ironically, Peru's modern textile industry further contributed to this agricultural catastrophe. Until recently manufacturers paid herders not by the fineness of their fleece but by its weight: The heavier the fleece, the higher the price. This system had the virtue of simplicity, but it led to other unfortunate breeding practices. To bolster their paltry earnings, Andean herders crossed alpacas with larger and heavier llamas. This produced animals enveloped in a coarse fleece riddled with useless guard hair, the antithesis of the fibre that made Inca cloth famous.

*Researchers neatly laid out the El Yaral mummies in a museum in the nearby town of Moquegua. At an ancient cemetery (below) in Chiribaya Alta, southwest of El Yaral, grave looters scattered the remains of sacrificial llamas and alpacas found in tombs alongside mummified humans.*



During Wheeler's student years at Cambridge University, one of her professors had insisted that to do good archaeozoology, a researcher had to understand and work with living animals. Wheeler never forgot. And seeing the sad state of modern alpacas and llamas has fueled her determination over the years to resurrect the Inca fibre.

As a first step, she needed a quick genetic test to distinguish alpaca hybrids from purebreds. Wheeler had to start from scratch, first building a DNA bank containing representative blood samples from all four species of South American camelid, including the vicuña, a species hunted almost to extinction for its superfine fleece, and the guanaco, another endangered wild species. Undaunted, she set off with her husband, Rael Rosadios, and British geneticist Helen Stanley on an extended road trip to remote mountain communities in Peru, Chile, Bolivia, and Argentina. At each stop, Rosadios bled the animals, storing the samples in rows of lilac-coloured vacuum containers. Their small Nissan truck was soon crammed with vials from 580 animals, the beginnings of a DNA bank that has now expanded to more than 2,000 camelids.

At the Institute of Zoology in London, geneticists Miranda Kadwell and Michael Bruford began analysing the samples, searching for molecular markers capable of distinguishing one species from another. They concentrated on small, repeated nuclear DNA sections known as microsatellites, which have proven useful in detecting hybrids in other species. Bruford and Kadwell found two microsatellites whose variants clearly separated the two wild camelids— the vicuña and guanaco— from one another. Then they looked to see the proportion of these markers in the domesticated camelids. Wheeler had long maintained, based on her earlier work with camelid skeletons, that the alpaca was a domesticated vicuña and as such belonged in a different genus than the llama. Many zoologists had disagreed, tracing the lineage of the alpaca either to the guanaco or the llama on the basis of certain physical traits. But Bruford and

# UPDATE - 2019

By Dr Jane Wheeler - for Camelid Connections Magazine

Kadwell's work suggested that Wheeler was correct. "The vicuña are the most likely ancestor of the alpaca, and the guanaco are the most likely ancestor of the llama," says Bruford, a biodiversity researcher now at Cardiff University. Next, Bruford developed a DNA test to identify purebred alpacas and llamas. With this, Wheeler and her Peruvian colleagues began methodically testing samples in the new gene bank. Hybridization, she soon discovered, was a far greater problem than anyone had suspected. Forty percent of the tested llamas were hybrids, with at least one or more alpaca or vicuña ancestor. Ninety-two percent of the alpacas were crosses. "The other thing that we discovered is that it's not possible to tell whether an alpaca or a llama is a purebred by looking at it," says Wheeler. "It's necessary to do DNA tests to certify purity."

With the new DNA testing, the team plans to survey alpacas and llamas across the Andes in search of relic purebred populations. Herders could then segregate the purebreds in elite herds and begin breeding animals with fine fleece much the way their ancestors did, by weeding out inferior males. "The basis will then be laid for improving alpaca fibre production in general because initial results indicate that there is at least some link between fine fibre and pure animals," says Wheeler.

She and Bruford are developing methods of improving herds by searching for a genetic marker for fine fibre. A simple DNA test for the trait would permit breeders to assemble purebred herds possessing exactly the right genes for producing superfine fibre. Breeders could then superovulate females from these herds and transfer their purebred, fine-fleeced embryos to low-quality-fibre females. "You could in a relatively short time have a herd with fine fibre that is genetically pure," Wheeler says.

As the team searches for financial sponsors for these projects, Wheeler is working on ways to lower the price of existing technology. At \$200 per animal, the DNA test for purity is too expensive for most Andean breeders. So she and Rosadios are developing one that eliminates the expensive imported radioisotopes. "In the very short term, we'll have the price down to less than \$50 and hopefully considerably lower," Wheeler says. Moreover, she is scouting for international backers for a new camelid research institute in Lima. "The idea is to include all aspects of the problem, from DNA tests to analysing fibre, and getting the results out to benefit the herders." Wheeler acknowledges that many scientific and practical obstacles lie ahead before Peruvians can once again produce fabric as seductive as the cloth of the Inca. But her dogged quest has attracted interest from both international woollen experts and Peru's own textile manufacturers. "What we see with Jane's mummies is that the Inca were very good at developing the genetics of good quality and uniform-colour fibre," says François Patthey, a director at Grupo Inca, one of Peru's largest alpaca-cloth manufacturers. "If we had that today, it would be really fantastic."

The llama and alpaca remains found at Chiribaya Culture sites located from sea level up to 1,000 meters elevation along the lower Osmore river drainage in southern Peru, were initially thought to have come from animals brought down from the high Andes. The possibility that they were reared locally was considered improbable and both the camelids and the Chiribaya were initially described as settlers from Tiwanaku, a site located on the Bolivian altiplano. Nonetheless, continued research has shown that the Chiribaya were a local development, independent of, and in part contemporary with, upper Osmore river Tiwanaku settlements. The earliest date for the origin of Chiribaya is AD 700 and the end date for Classic Chiribaya is AD 1360 when extensive flooding produced by a major El Niño event destroyed the irrigation system, essential for survival in the extremely arid climate, and most sites were abandoned. The terminal/post-disaster Chiribaya survived in small, scattered homesteads until arrival of the Spanish.

Between 1985 and 1988, Don Rice (Southern Illinois University), directed the excavation of four structures at the site of El Yaral (1,000 meters above sea level) that produced the llama and alpaca mummies described in Heather Pringle's 2001 article. While these naturally mummified sacrificial animals provide a unique picture of preconquest livestock, analysis of the faunal remains found in occupational areas and accompanying human burials at El Yaral, and other Chiribaya sites, has provided a fuller understanding of herding techniques and priorities. In 1998 Juan Rofes completed his archeology degree at the Pontifical Catholic University of Peru, presenting his thesis based on analysis of the faunal remains from the El Yaral structures. His results clearly demonstrate that both alpacas and llamas were reared near the site, and meat from young animals of both species comprised the greater part of the human diet.

Starting in 1998, Jane Buikstra (University of Arizona) and Cecilia Lozada (University of Chicago) conducted a series of cemetery excavations at El Yaral, as well as at the sites of Chiribaya Alta and Chiribaya Baja, located 100 meters above sea level and 7 kilometers from the shore. Their results documented the division of Chiribaya society into two groups: "pescadores" or fisherfolk and "labradores" or herder/farmers; distinctions marked not only by the grave goods accompanying the dead (different ceramic designs, fishing or herding equipment, sacrificed llamas and alpacas including heads, feet and even entire animals, among others); but also by differing skull deformation techniques applied during infancy. Whereas the fisherfolk practiced annular deformation by tightening textiles around the head

to produce narrow, elongated skulls, the herder/farmers tied boards across the front and back of the skull which were gradually tightened to produce a wide, rounded shape. Paleodietary analysis of the bones carried out by Paula Tomczak also showed that the fisherfolk consumed mainly foods of marine origin while the herder/farmer diet was based on terrestrial resources. Genetic distance analysis by Jane Buikstra and Cecilia Lozada and strontium isotope analysis by Kelly Knudson showed that Chiribaya origins were local, unrelated to the highland Tiwanaku.

The importance of llama and alpaca herding in Chiribaya society is clearly documented in the offerings accompanying their dead. At Chiribaya Alta, the most important Late Classic Chiribaya site (AD 1200-1360), only one of the nine excavated cemeteries contained predominately fisherfolk burials (Cemetery 4), while the others pertained to herder/farmers. Llama and alpaca offerings found in these burials ranged from a single foot to many animals in the elaborate tombs of cemetery 7. The massive volume of offerings found in the 32 tombs studied from this cemetery, contrasted significantly with those from herder/farmer burials elsewhere at Chiribaya Alta and El Yaral, and likely reflects the emergence of a herding elite. One tomb (742) contained the remains of an 11 year-old child with the skulls and mandibles of 7 llamas, including a fetus, 2 animals approximately 21 months old and 4 males older than 42 months. Two of the four males were suffering from osteomyelitis dental infections which would have made it difficult for them to graze. Other tombs contained human babies with 2 to 4 sacrificed llamas, young children with 2 to 5 sacrificed animals, and so on up to the burial of 31.5 year-old female with 10 llama skulls and a complete newly born animal. In some of the looted tombs remains of fore-limbs were found which had been sawn to remove a segment of the humerus leaving metal stains on the remaining fragments, that suggest "bracelets" of copper or gold had been removed.

The camelids found in the tombs at Chiribaya Alta and the other sites were sacrificed by blows to the head between the ears, in the same manner as the sub-floor camelid mummies found at El Yaral. The death of a person would have required the immediate sacrifice of llamas and alpacas for interment with the departed. There is no indication that camelid bodies were stockpiled for use at burials, so the age and other characteristics of the animals selected for sacrifice may reflect rational herd management decisions. Analysis of 140 llama and alpaca skulls and mandibles from the Chiribaya Alta excavations shows that 68.9% (n=96) came from animals younger than 21 months, 15.7% (n=22) from animals 21 to 42 months, 12.9% (n=18) from adults older than 42 months and 2.9% (n=4) from very old adults. What this data may imply about decision making in selection the animals for sacrifice is that most of the animals were taken prior to the first breeding season (68.9% younger than 21 months) likely eliminating those with undesirable characteristics. A second group (15.7%, n=22) includes animals taken after the end of

the first breeding season and at the end of the second breeding season that were likely chosen due to reproductive problems (failure to conceive, failure to reproduce) or health issues. The third group (12.9%, n=18) includes adults of prime reproductive age, some of which had severe dental problems, low live weights and probably other disease issues not visible in the skulls that led to their selection for sacrifice. And finally, the very old group (2.9%, n=4) would have included animals kept alive as long as possible for their desirable characteristics but with nutritional problems due to dental and/or other diseases and inability to reproduce determining their demise. In summary, the rationale by which the llamas and alpacas were selected for sacrifice appears to be management based, eliminating undesirable traits and maintaining the best, most desirable animals alive to reproduce as long as possible. Such a strategy would have been necessary to produce the fine quality animals which became mummified at El Yaral.

The two cemeteries of herder/farmers at El Yaral did not contain abundant camelid offerings, but both llamas and alpacas were sacrificed and buried beneath the house floors. Due to the extremely dry climate they were naturally mummified and their excellent preservation has permitted us to see what the Chiribaya alpacas and llamas looked like. The 2001 article by Heather Pringle has described our research on these animals while the present document discusses additional information obtained through the analysis of domestic rubbish from the houses, as well as evaluation of camelid offerings in Chiribaya tombs at El Yaral and Chiribaya Alta. It is absolutely clear that llama and alpaca herding was of central importance to the Chiribaya; that the herds were raised near the sites on the coast and in the lower Osmore valley; that selection criteria for the production of high quality animals prevailed even in the urgent selection of sacrificial animals to accompany the deceased or for offerings buried below the house floors; and, finally, that prior to the disastrous flooding of AD 1360 and subsequent cultural collapse, an elite group associated with camelid production had emerged on the coast among the Chiribaya.

Buikstra, J. E. 1995. *Tombs for the Living. . . or. . . for the Dead. The Osmore Ancestors*. In: T.D. Dillehay Ed. *Tombs for the Living: Andean Mortuary Practices*, pp. 229-280. Washington, D. C., Dumbarton Oaks Research Library and Collection. | Knudson, K.J. 2004. *Tiwanaku Residential Mobility in the South Central Andes: Identifying Archaeological Human Migration Through Strontium Isotope Analysis*. Unpublished PhD Dissertation. University of Wisconsin at Madison. | Lozada, M.C., J.E. Buikstra, G. Rakita and J.C. Wheeler. 2009. *Camelid Herders: The Forgotten Specialists in the Coastal Señorío of Chiribaya, Southern Peru*. In: J. Marcus and P.R. Williams, Eds. *Andean Civilization: A Tribute to Michael E. Moseley*. Los Angeles, UCLA Cotsen Institute of Archaeology Press, pp. 351-364. | Rofes, Juan. 1998. *La utilización de recursos faunísticos en El Yaral, asentamiento Chiribaya en la Cuenca del Osmore, Sierra Baja de Moquegua*. Tesis para optar el título de Licenciado en Arqueología. Pontificia Universidad Católica del Perú, Lima. | Tomczak, P. 2002. *Prehistoric Socio-Economic Relations and Population Organization in the Lower Osmore Valley of Southern Perú*. Unpublished PhD Dissertation, University of New Mexico, Albuquerque.

# ALPACA HOMEWARES

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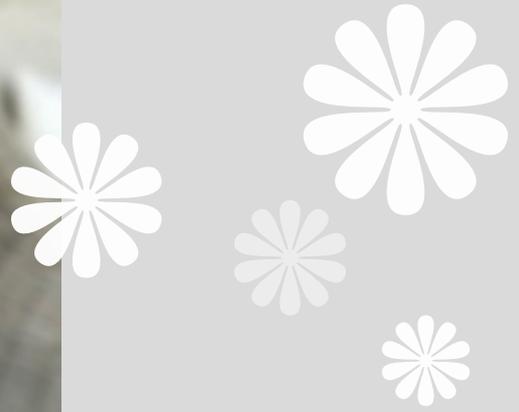
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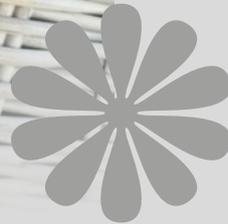
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# ALPACA EVENTS

## NEW ZEALAND ALPACA ASSOCIATION

*(For details see Assoc website)*

South Island Colourbration

28 Sep

Judge - Adrienne Clark (AUS) (Fleece & Breed) | Closing Date 16th August 2019

Northern Region

2019 National Alpaca Show

12 Oct - 13 Oct

Judge - Lyn Dickson (AUS) - Breed & Sarah Busby (Fleece) | Closing Date 1st September 2019

Southern Region

Ellesmere Show

19 Oct

Judge - TBA (Breed) | Closing Date TBA

Northern Region

Hawkes Bay Show

25 Oct

Judge - Diane Marks (Breed) | Closing Date 11th October

Southern Region

Rangiora Show

26 Oct

Judge - Molly Gardner | Closing Date 25 September 2019

Southern Region

Ashburton Show

02 Nov

Judge - TBA (Breed) | Closing Date TBA

Northern Region

Waikato A&P Show

02 Nov - 03 Nov

Judge - Natasha Clark (Breed & Fleece) | Closing Date 30th September 2019

Central Region

Central Colourbration Show

09 Nov - 10 Nov

Judge - TBA (Breed & Fleece) | Closing Date TBA

Southern Region

The New Zealand Agriculture Show (Canterbury A&P Show)

14 Nov - 15 Nov

Judges - Mr Robin Nasemann (Germany) (Breed & Fleece) | Closing Date 20th September 2019

## NEW ZEALAND ALPACA ASSOCIATION (CONT.)

Central Region

Egmont A&P at Hawera

23 Nov

Date as per the RAS Website | Judge - TBA (Breed & Fleece) | Closing Date TBA

Southern Region

Southern Canterbury Show

23 Nov

Judge - Paul Garland (Breed) | Closing Date TBC

Southern Region

South Otago Show

30 Nov

Judge - Diane Marks (Breed) | Closing Date 14th November

## AUSTRALIAN ALPACA ASSOCIATION

*(For details see Assoc website)*

CHARLES LEDGER ALPACA SHOW

14 Sep 2019 - 15 Sep 2019

Goulburn Showgrounds

Contact: Debra Trostain – Ph 0417 689 197

sanddtrostain@gmail.com

ROYAL MELBOURNE ALPACA SHOW

30 Sep 2019 9:00 am - 01 Oct 2019 5:00 pm

Melbourne Showgrounds

Sale Alpaca Show

12 Oct 2019 10:00 am-3:00 pm

Sale Showgrounds

## AUSTRALIAN ALPACA ASSOCIATION ELECTIONS

Reminder to all Australian Alpaca Association members that the closing date for voting for your President and Board members is 19/09/2019 at 5pm so please have your say in who runs the Association by following the information emailed to you by True Vote on 30/9.

# LLAMA EVENTS

## AUSTRALIAN LLAMA ASSOCIATION

2019 National AGM & Conference

20th - 22nd September Queanbeyan, NSW

# 2019 AAA National Show

By Michelle Malt - Big Sky Alpacas

The 2019 National Show was held at the Exhibition Park In Canberra (EPIC) Centre with the halter judging, Art and Craft judging and Youth events taking place in the Budawang Pavilion over three days commencing on Friday 23 August and concluding on Sunday 25 August. The alpacas were housed in the Coorong Pavilion throughout the show, with covered access between the two buildings. Canberra in late August can be bitterly cold, and despite temperatures below freezing overnight, the days were clear and the sun was shining, providing a warm welcome to exhibitors and spectators who travelled from across Australia and New Zealand.

AAA Judge Shane Carey from Victoria completed the fleece judging prior to the event, with the winning fleeces on display in the Budawang Pavilion throughout the Show. 130 fleeces were entered, lower than in previous years, however given the extended dry conditions across much of Australia, along with strong demand for alpaca fleece from local and international buyers, the reduction in numbers still tells a positive story for the Australian alpaca industry.

Recognition by way of the top awards was shared across five different studs, with the Supreme Champion Huacaya Fleece awarded to EP Cambridge Connoisseur exhibited by Coolawarra Alpacas (NSW), and Supreme Champion Suri Fleece awarded to Baarrooka DS Tilt-A-Whirl exhibited by Baarrooka Alpacas (Victoria). The Judges Choice award went to EP Cambridge Chain Reaction exhibited by EP Cambridge (South Australia). The prized awards for Most Commercial

Fleece were awarded to Monga Mustang (Huacaya) exhibited by Monga Alpacas (NSW) and Marquez Luciano (Suri) exhibited by Marques Alpacas (South Australia).

AAA Judges Mr Peter Kennedy and Ms Natasha Clarke co-judged the halter classes, with both having judged the AAA National Show on previous occasions, including together in Adelaide in 2012. Commencing with the Junior Suri Females at 8am on Friday, they worked their way through almost 450 animals, culminating in the lineup of Champions on Sunday, where they selected first the Best Male and Best Female Suri, who then vied for the title of 2019 Supreme Champion Suri.

Baarrooka Alpacas were well represented in the Champion Lineup, with their Intermediate Champions the eventual winners – Best Suri Female was presented to Baarrooka Fa Zimbabwe, with Baarrooka Fa Lisbon taking the title of Best Suri Male and Supreme Champion Suri. Very little separated these two animals who were outstanding examples of the suri breed, both aged 17 months.

The Huacaya Champion Lineup demonstrated the depth of quality breeding from studs across several states, with the Best Huacaya Male awarded to the Bova Terminator Too, exhibited by Bova Alpacas (NSW), and the Best Huacaya Female awarded to Dural Tiny Dancer exhibited by Dural Alpacas (NSW). The judges were thorough in their examination of the two Intermediate Champions to determine the winner of the Supreme Champion Huacaya, which was ultimately presented to Dural Tiny Dancer.



Supreme Champion Huacaya Fleece EP Cambridge Connoisseur Coolawarra Alpacas NSW



Supreme Champion Suri Fleece Baarrooka DS Tilt-A-Whirl Baarrooka Alpacas VIC



Supreme Champion Suri - Baarrooka Fa Lisbon  
Baarrooka Alpacas VIC



Supreme Champion Huacaya - Dural Tiny Dancer  
Dural Alpacas NSW

The Youth events were held in a slightly smaller ring adjacent to the halter judging ring in the Budawang Pavilion, and attracted a large number of spectators and supporters both during their competitions, and for the presentation of awards in the main ring following the event.

Competitors were required to qualify at state level to be eligible to participate for the National Title, showing the dedication of our young people (and their supporters) who achieved this opportunity. In the Paraders Competition, State Master Trainer for Victoria was Tamaryn Kimber, State Master Trainer for NSW was Samantha Hayward, and State Master Trainer for Queensland was Katelyn Holznagel.

The Supreme Trainer in the Preliminary Division was awarded to McKayla Stewart from NSW; and Supreme Trainer in the Open Division was awarded to Christie Hayward, also from NSW. On Sunday the Young Judges competition was overseen by experienced AAA Judge and long-time Youth Mentor Lyn Dickson, and the Champion Young Judge was Jonee Phillips, who has participated in Young Judges competitions in several states.

A regular feature of the National Show is the Trade Stands, and these were also situated in the Bundawang Pavilion.

There were a range of products and information on hand, and while Friday was relatively quiet, on Saturday and Sunday the pavilion was teeming with visitors, many of whom were excited about seeing such a large number of alpacas, and were equally fascinated by the end product. Being able to see the alpacas in the show ring, the fleeces on display and the yarn, garments and homewares available for purchase was an excellent promotion for the viability of our industry. Around 3,000 members of the public made their way through the two pavilions during the three days of the Show, with many purchasing alpaca products and of course, taking lots of photos.

The Art and Craft competition was displayed adjacent to the competition rings, and while small in number, the quality of hand-produced product was outstanding.

The National Show is the ideal opportunity for alpaca breeders from across the country to catch up with friends and industry colleagues, and the Fashion Parade on Friday night and Dinner on Saturday also showcased alpaca product.

Congratulations to all exhibitors, and thank you to the volunteers and the AAA office staff who delivered an enjoyable and successful event.

# Craft Workshops

by Angela Smith, One Tree Hill Alpacas

At this year's Australian Alpaca National Show, for the very first time, demonstration crafting workshops were held, encouraging the wider public to handle and use alpaca fibre.

The Craft Corner and the Felting Demonstration Area were a hit with many visitors to the show joining the demonstrations and getting hands on with the fibre. During the show, workshops and demonstrations were held for felting, weaving, crochet, knitting, carding and spinning fibre.

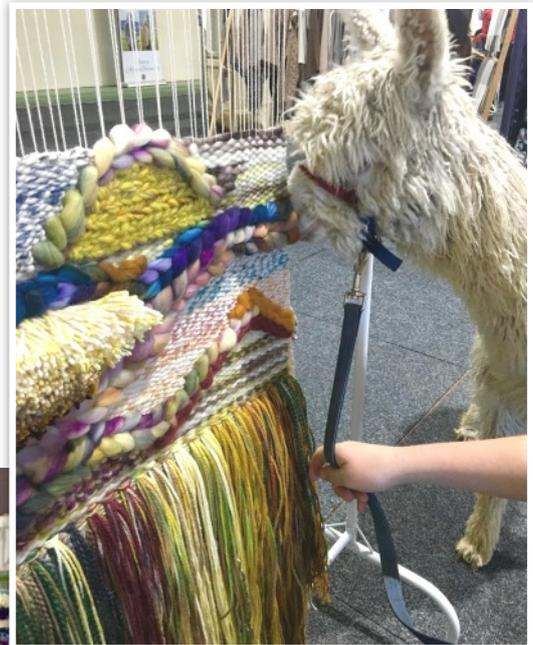
A very popular demonstration was the weaving with alpaca. Julianne from Fibre Art in Australia, travelled from Sydney to present at this year's show. Julianne used the weaving demonstrations to showcase the ancient art of weaving in a modern style, using mainly alpaca but also other mixed fibres. Many visitors to the show participated in a Make and Take Workshop, where they had the opportunity to learn how to weave on a mini loom. After the workshop they took their weaving home as a really lovely organic style wall hanging. This workshop was a hit with the kids and the adults alike.

Carol Ann, from Lampton Lodge Alpacas and Ash Herring from Fibre Naturally Alpaca Mill spent all day Saturday spinning up a storm - showcasing their skills at spinning alpaca fibre. Carol Ann also demonstrated how to hand

process fibre from raw fleece, to electronic carding all the way through to spinning. Carol Ann and Ash answered many questions during the day, explaining the process and showing how to spin alpaca to the general public.

Sue Green from Maple Lodge Alpacas showcased felting at the show. Sue, a self-described 'arty-crafty', demonstrated her unique method of making felt, using an orbital sander, which Sue says brings felting into the 21st Century, making the felting process quicker and less taxing. Sue had a wonderful display of items to show the public a wide range of things that could be made using alpaca fibre. It was truly and stunning display!

The Crafting Corner and the Felting Demonstration Area were hits with the general public and will most definitely be coming back to the Nationals next year!





SUPREME CHAMPION ART EXHIBIT - Angela Smith  
Koala on a Stump

# Art & Product

By Rosie Francis

The Art and Product Show was held ringside at the Australian Alpaca Nationals, our judge was Liudmila Abramova a renowned and multi awarded fibre and textile artist. The Visual Art section of the competition was divided into Photography, Art (Painting, Drawing etc) and Sculpture classes. We also had classes for junior exhibitors. All of these classes attracted a lot entries.

The Product section was also divided into classes, these were for Knitted, Crocheted, Felted and Woven textiles. We had entries in all classes with the exception of the hand spun yarns. Dickson College had two students enter garments made by weaving alpaca yarn and they further provided a display of other woven garments from their textile department.

The winning garment from the Product section was worn in the fashion parade on Friday evening, as were the garments from Dickson College.

The exhibits made a great display and were enjoyed and viewed by 3000 public visitors as well as those associated with the alpaca show.

The winners were:

CHAMPION JUNIOR VISUAL ARTWORK - Nateisha Davis

Reserve Champion Junior Visual Artwork -Anastacia Keilani

CHAMPION VISUAL ARTWORK - Angela Smith  
Koala on a Stump

Reserve Champion Visual Artwork - Sharon Dawson  
Mother's Love, when Cold and Wet

CHAMPION PHOTOGRAPH - Sue Rymer - Little Yoda

Reserve Champion Photograph - Kayla Thomas – Orchid

CHAMPION JUNIOR PHOTOGRAPH - Grace Rutherford-Collins

SUPREME CHAMPION ART EXHIBIT - Angela Smith  
Koala on a Stump

CHAMPION WOVEN EXHIBIT - Anne Marie Harwood  
Wall Hanging

Reserve Champion Woven Exhibit - Asha Aikman  
Sleeveless Dress and Hat

CHAMPION KNIT EXHIBIT - Ashleigh Herring - Blanket

CHAMPION CROCHET EXHIBIT - Amanda MacKinnell - Cloak



CHAMPION KNIT EXHIBIT - Ashleigh Herring - Blanket

# Services Directory

## FLEECE BUYERS

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Phone: Michael Williams Ph 0407 407618

Email: [mick@waratahalpacafibre.com.au](mailto:mick@waratahalpacafibre.com.au)

Website: [ww.waratahalpacafibre.com.au](http://ww.waratahalpacafibre.com.au)

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Australian Alpaca Fleece Ltd. (AAFL) Distributes in Australian a complete variety of Alpaca made garments under its Australian brand, Australian Alpaca Connection and also is the exclusive distributor in Australia and New Zealand of the internationally recognised Alpaca fashion brand, KUNA.

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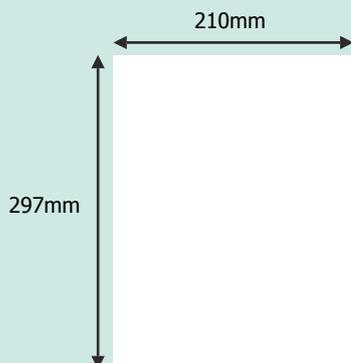
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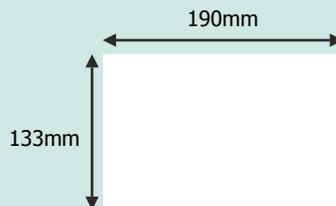
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- All adverts have a hyperlink directly to your website or email - one click & potential customers can connect with you
- Camelid Connections magazine is a **FREE** online publication available as a subscription or download from our website
- Back issues will always be available online so your advert has a long 'shelf life'
- Camelid Connections offers readers a wide variety of quality articles of interest to attract a broad audience

### Advertising Rates\*

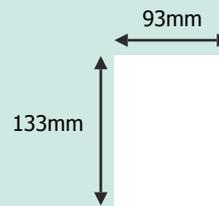
**Full A4 Page \$360**  
(210mm x 297mm  
No bleed required)



**Half Page \$185**  
(190mm x 133mm)



**Quarter Page \$95**  
(93mm x 133mm)



**Business Card \$55**  
(93mm x 65mm)



**Classified Listing \$36**  
Max - 50 words + contact details

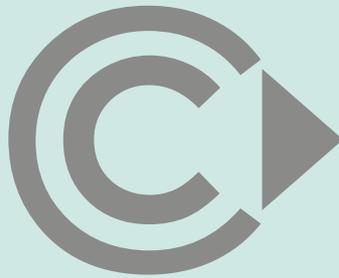
- Package rates for prepaid advertisements in 3 issues of Camelid Connections receive a 10% discount.
- Double page spread receives a 25% discount (no additional discounts apply)
- Inside front cover and opposite page attract a 10% loading.
- Camelid Connections magazine will be a quarterly publication commencing in September 2017\*
- Advertising needs to be provided as a PDF or JPG to specifications listed above.
- Other advert configurations considered - ask us for a quote

To book advertising or for further details contact either:

- Julie McClen - Graphic Designer Ph: 02 6493 2036  
Email: [julie@camelidconnections.com.au](mailto:julie@camelidconnections.com.au)
- Esmé Graham Editor Ph: 0457 304 868  
Email: [esme@camelidconnections.com.au](mailto:esme@camelidconnections.com.au)

[www.camelidconnections.com.au](http://www.camelidconnections.com.au)

\* We reserve the right to alter advertising specifications and publications rates and dates at any time.



[www.camelidconnections.com.au](http://www.camelidconnections.com.au)

If Camelids are your thing - we have you covered!

Interesting, informative articles & relevant advertising

ALPACAS | LLAMAS | VICUNAS | GUANACOS | CAMELS