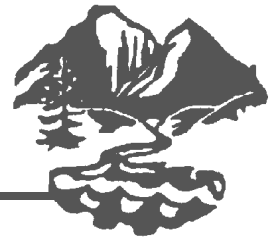




# LIVESTOCK AND NATURAL RESOURCES



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## GOATS...A SPECIES WHOSE TIME HAS COME

**Goats are good!** Just let that thought sit with you a while. Many times, the mere mention of the word goat brings an anguished look and a disgusted shake of the head by the listener. Images of uncontrollable animals running around eating everything in sight are vivid in many people's minds.

Then there is the whole ranch identification with species issue. "We raise cattle", "We raise sheep", "We raise \_\_\_\_\_ (*insert whatever specific breed of livestock you want*)". The idea of raising something different or mixing species is hard for people to accept.

**Goats are good!** They can be used in a variety of ways and can be complementary to many existing livestock enterprises.

This publication will



highlight a goat operation called Goats Unlimited. GOATS UNLIMITED has an overall goal to produce the highest quality KIKO meat goat for breeding stock and meat production while enhancing land productivity.

I visited their place in mid-August and they seem to be pushing the goat envelope as much as anyone.

They are currently doing the following with goats:

- j *Breeding*
- j *Land cleaning*
- j *Fire Suppression*
- j *Orchard pruning*
- j *Weed control*
- j *Marketing goat meat to restaurants*

They are successful at what they do because they understand the concept of finding an animal that fits the environment, goat husbandry, use of guard dogs, and implementing principles of management-



intensive grazing in a variety of situations.

Goats Unlimited started in Hawaii and became a partnership in 1990, five years after its initial establishment as a meat goat production and land cleaning operation. Two people comprise this business — Dr. An Peischel and Mike Spaetgens. An has a Masters and PhD in Livestock Nutrition and Mike is a commercial fisherman. The two have joined forces and are a dynamic team.

For more information on goats — read on. More detailed information on Goats Unlimited can be found at their website at:

<http://home.inreach.com/kiko/index.html>

## WHAT ABOUT GOATS?

Goats Unlimited primarily is in the business of producing Kiko goats. They also have Boer goats for sale. It is not the intention of this newsletter to spark some sort of debate about breeds of goats. This information is included to give you some background on these two breeds of goats.

Goats Unlimited has been selecting both female and male replacements for their purebred KIKO mob under stringent requirements. They expect their KIKO females to twin the first kidding (*bred as yearlings*), raise and wean the twins.

The females accomplish this by grazing native vegetation with brush as a shelter, and a free choice loose mineral mix formulated to correct nutritional imbalances based upon soil, forage and blood analysis.

These doelings are expected to travel rugged terrain and long distances grazing native vegetation carrying twins. They need body capacity for the rumen and twins, structurally correct legs and feet for traveling and chest capacity for lungs with increased intake volume. Fullness of hindquarter, inside rear leg muscling and

depth of twist are also evaluated. Doelings are culled for breakdown of feet and legs, not twinning, poor motherability or milkability, and udder conformation.

Goats Unlimited selects bucks on many of the same rigid conformation standards as they do females — structure of feet, legs and pasterns, width across the withers and rump, length and width of back and loin, depth of heart girth and chest floor, as well as both the shoulder and pelvic angles and expressed muscle definition of the hindquarter and inside hindleg. A pear-shaped scrotum that is not split containing firm testicles of equal size is a major criteria.

Goats Unlimited is ruthless in culling with culled females going into their meat market and their males into their land enhancement projects.



*Goats being utilized for vegetation management.*



## BOER GOATS

The New Zealand Boer goat is one of the hardiest of all livestock breeds. Bred for dominance, the breed distinguishes itself by carrying superior genetic characteristics for goat farming.

Boers have a high resistance to disease and adapt well to various climates and terrain. Internationally, the Boer has been used to improve other breeds through aggressive crossbreeding programs.

Boers also have the ability to maintain economic production for ten years or longer and have multiple births. The ability to multiply and maintain economic value, coupled with the Boer's regular features — stout build, lean meat, remarkable size and rate of growth and fertility reached at an early age — make a Boer goat a valuable commodity.

## KIKOS — A NEW MEAT GOAT BREED

*Adapted from article by G.J Bratten, Caprinex Ltd., Brightwater, Nelson, New Zealand*

A program, carried out in New Zealand to develop a new meat goat breed, capitalized on the dynamics of the large feral base population.

The goal of the program was to develop a breed capable of high performance that would increase meat production under difficult conditions. Feral goats are small with typical liveweights at weaning and maturity of 25 to 55 pounds for does and 35 to 88 pounds for bucks.

KIKOs were developed by cross breeding selected feral does with Anglo Nubian, British Toggenberg, and Saanen bucks. With further cross-breeding and interbreeding, replacement stock were selected solely for survivability and growth rate in a hill country pastoral environment. After four generations of breeding, a dramatic improvement in liveweight and animal performance was achieved, and the KIKO breed established.

Husbandry inputs have been minimal. No hooves trimmed, and those with problems are culled. Internal parasite control is restricted to two to three drenches per annum for adults and five to six drenches for young animals in their first year.



## GOAT MANAGEMENT

### Breeding

The Goats Unlimited breeding interval is three times in two years for commercial does and twice a year for purebred does for a 45-day breeding season; hot synchronizing the bucks before putting them with the does (*a mature buck to 70+ does*).

Bucks are vaccinated for CDT (*clostridium perfringens C&D with tetanus*) and leptospirosis. Feet are trimmed and they're fed one pound of whole corn daily four weeks before the breeding season.

The does are flushed on high quality vegetation and vaccinated for leptospirosis three weeks before breeding. Three weeks before kidding, they are vaccinated for CDT. Feet are trimmed four weeks before kidding.

The deworming program is based upon fecal analysis, pasture conditions and weather, and the physiological status of the goat.

### Kidding

At kidding, the does are set stocked in a pasture with mixed vegetation. The does are sorted into two groups — those bred during the first 21 day cycle and those bred the second cycle. As pasture quality decreases, the does are supplemented with one to two pounds of alfalfa hay daily.

The kid's navels are trimmed and dipped in iodine, they are ear tagged and imprinted. Imprinting kids at birth and for the next 24 hours makes herd breaking and handling much easier as they get older. Any orphans are grafted or fed fresh goat milk for seven days, then gradually switched to 50:50 (*kid milk replacer: fresh goat milk*), alfalfa hay and rolled corn.

At three weeks of age, the kids receive their first CDT vaccination and females are disbudded. At seven weeks of age, the kids receive their second CDT and first leptospirosis vaccines, and the males are castrated.

The kids are weaned at three months of age, receiving their booster CDT and second leptospirosis vaccinations, and feet trimmed. Occasionally Goats Unlimited has a wet kidding season and dermatophilosis appears, but is not a long-lived problem.

### Weaning

The weanoffs are fed one-half pound of whole corn per day with decox and alfalfa hay free choice for three weeks. They are then fed one-quarter pound of whole corn per day for two weeks along with pasture that is intensely managed.

Wethers are sold for meat at four to six months of age and the young doelings and bucklings are grown out on

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intensively managed vegetation.

The replacements are screened through a complete health profile, conformation and genetic background check, selected and bred at approximately 10 months to one year of age. All individuals receive their first rabies vaccination by one year of age.

### Closed Herd

Goats Unlimited's decision to close the herd was made to secure a disease free status. Because of their rigid testing procedure, the herd is clean of caprine arthritis encephalitis, caseous lymphadenitis, buccellosis, tuberculosis, toxoplasmosis, and leptospirosis.

They have spot tested for campylobacter, chlamydia, bovine viral diarrhea (*border disease*), Johne's disease, and Q-fever, **never** having a case appear. Foot rot has never been a problem because of their health maintenance program.

### Minerals

A free choice loose mineral mix of 10% salt, 1.5:1 Ca:P, chelated minerals, EDDI and zinc methionine is on offer. Goats Unlimited is located in a mineral deficient area so soil, forage and blood mineral levels are monitored regularly.

## GOATS ARE GOOD...GETTING THEM TO WORK FOR YOU!!

*Adapted from an article by Dr. An*

Now that we have a little background, we can learn about what goats can do. Goats are ruminant animals with a varied diet that consumes woody plants, shrubs, forbs, and grasses. They can be very effective in lessening or removing brush. In order to do this, you have to take the goats to the brush.

Once at a site, several things must be put in place in order for the goats to be successful. The following are answers to some common questions.

### How Are The Goats Controlled?

Portable electric fencing with solar energizers are used to control the goats. Terrain and predation challenges determine whether to use portable electric flexible netting or three to four strand electric polywire (*see picture below*) with tread-in posts.



Our kidding paddocks are all electric so the kids learn at a young age to respect the fences.

To ensure a good shock, grounding usually starts with four ground rods spaced 10 feet apart. More are added if the shock is not high enough. Remember, electric fences are more a psychological than a physical barrier. Animals avoid the fence because they do not want to get shocked. They could easily break through the portable fencing if not for the electricity — however, eight to nine thousand volts has a way of getting your attention.

### Don't They Get Thirsty?

Yes, they do. If no water source is nearby, portable water systems are used.

The system consists of a storage tank that sits in the back of a pickup, old fire

pump, and plastic barrels cut in half with a float valve that is attached.

They fill the tank in the back of the pickup with water and haul it to the goats. Gravity pressure moves the water from the

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pickup to the fire pump. Gravity is also used to deliver water from the pump to the portable water tanks. The pump also has a motor which can be used if needed. Goats drink about a gallon a day in the hot weather of summer.



## What About Minerals?

Minerals are fed as a block or as a loose chelated mix. Kelp meal is also fed. The minerals are fed in feeders hung off the ground in the trees.

## Aren't Predators A Problem?

Yes! The fencing helps some. The biggest deterrent occurs through the use of guard dogs. They use Pyrenean Mountain Dogs (see below). The primary predators are coyotes, mountain lions, bears, and domestic dogs. They are always a concern.

The breed's origin is one of the Mastiff family, came to Europe (the Pyrenean Mountains of France and Spain) via the plateau of Tibet. The Pyrenean remained isolated for many years guarding flocks on high, rugged mountain slopes.

Due to the extreme environmental conditions in which the guardian dog existed, body size, substance and power, stamina and

protective body coat became essentials. The Pyrenean air of quiet confidence and intense instinct to guard with his life that which is placed in his protection makes this livestock guardian dog invaluable.

While An and Mike were around, these dogs were curious about me and friendly. However, if they had not been around, the dogs would have become more aggressive if I had crossed over the fence containing the goats. While nothing is 100%, Goats Unlimited has not suffered any predator losses while grazing this summer on Soper-Wheeler Timber Company land in Strawberry Valley.



## LAND CLEARING

Goats Unlimited has been land cleaning for 13 years in Hawaii and California. The vegetation in the Sierra Foothill grazing area consists of woody plants, shrubs, forbs and grasses.

Before entering a new area, we develop a landscape goal, complete a vegetative survey and identify toxic plants. The objective is to control the invasion of unwanted species and encourage perennial grasses to return. Production management of the pasture is based upon a holistic approach and management-intensive grazing principles.

As the vegetative survey is being done, the growth habit and adaptation of each plant specie must be known, especially those that are toxic. Know the toxic factor of the plant, when it is at its highest level and when the plant can be consumed. In trying to control the invasion of woody species into grassland and encourage perennial grasses to return, it is important also not to forget the soil environment.

The effectiveness of the precipitation distribution pattern of the area is important for soil moisture and the growth of the different plant species. When the vegetation starts to change towards more desirable plants the amount of canopy to be left must be

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established. Reasons for leaving a canopy depend upon the use of the land that was set in the landscape goal and upon encouraging wildlife.

### Roger's Notes

Because of this point, the goats are put in a large paddock of approximately 25 to 35 acres. This allows them to graze where they want. As the unwanted vegetation is grazed down, it makes it easier for the landowner to re-assess and make any changes to the landscape goals and desired canopy.

Goats will tend to graze from the outside edge of the paddock and then move further into the paddock. Land cleaning involves grazing to create a certain landscape. Using the goats to gradually change the landscape maintains flexibility to tweak any changes the landowners might desire.

The first stop when I was there was a land cleaning project. Initially, the land was overgrown with blackberries, dock, and cocklebur. Now there were open areas for annual grasses to be expressed and it was easy to move around.

Goats can be a tool to use when other animals may not work. For example, we have a spring at the Sustainable Ranching Research Project site. This area is overgrown with blackberries (see *top photo*). One fall day we herded the cattle over to the berries. We put up a polywire paddock around the berries and used alfalfa hay thrown

into bushes to entice the cattle to trample and/or graze the berries.

The cows would lean in to get at the hay, but would not step into the bushes. The result was minimal impact. Eight months later, An brought some goats over and put them on the berries.

They started to impact the vegetation by stripping the leaves and moving on inside of the bush. She was only able to stay one day, but changing the species greatly affected the impact on the berries (see *to right*).

With the use of the goats, herbicide and pesticide usage can be virtually eliminated. Creativity and imagination are needed to approach any obstacle and solve it — there are no problems, just challenges. It is economical; there is no heavy metal input, no chemical costs and the goats are in high demand by the ethnic groups as a food source.

### More From An

Making sure the goats are environmentally adapted to work in the area alleviates health and production problems. Do not overlook the physiological state and the age of the animals in use during a land cleaning project. It is not productive to manage for land cleaning and reproduction of the goats at the same time. However, this will also depend upon the quality of the



vegetation to be grazed and the grazing management practices. The age of the animal is very important as young stock do not have the teeth needed to bark and strip trees and shrubs. But, they do have the agility to get into areas that older stock may not venture.

Scientific research and resource production management have to be used together to change a low successional environment to a high successional one.

Goats, under CONTROL, are being used to enhance land productivity.



## GOATS...AND FIRE!!

The following introductory fire information comes from the 1997 *The Defensible Space and Healthy Forest Handbook*.

### The Past

Prior to the Gold Rush, large pines dominated the landscape. The understory consisted of shrubs, perennial bunchgrasses, forbs, and some immature trees. **Large herds of animals browsed on the understory shrubs and brush keeping fuels low in height and volume.**

When pine needles and understory vegetation were present in sufficient quantities, low intensity fires could sweep through and consume these surface fuels. Fires were rarely intense enough to kill large trees.

Fire history studies throughout the western United States suggest that low intensity burns in mixed conifer forest types on average intervals of one to 30 years prior to 1890. Surface fires occurred at average intervals of four to eight years in the western foothills of the Sierra Nevada, largely ignited by lightning.

### The Present

Today there are no great herds of livestock moving through to consume large quantities of understory. Fire suppression and foothill urbanization have allowed a deep fuel bed of leaves, twigs, pine needles, dead trees, limbs, and decadent brush.

The environment for high intensity burns such as surface or crown fires exists in many areas of the foothills.

As an example, the fuel loading in the Meadow Vista community is estimated at over 200,000 tons! This is just one community in the foothills.

### Enter The Goat

Many foothill areas have tremendous amounts of fuel loads. The potential for fire is high. What can be done? Homeowners are encouraged to keep a minimum of 30 feet of clearance around their homes (*100 feet is preferred*). Some do and some don't.

Controlled burns have been used in the past. Burning has a much narrower window of opportunity due to air quality concerns. Chippers are being used to masticate brush in a short period of time. The process works but is not cheap. There are steep areas where it would be difficult to get the machinery on-site.

This leaves the goat. Their preferred diet is browse and weeds. Prior to the Gold Rush it was mentioned that large herds would move through areas and graze the



understory and brush. Removal of the fuel loads resulted in low intensity fires.

Today, the same situation is being replicated using goats. Goats Unlimited has been hired by Soper-Wheeler timber company to graze understory on their 100,000 acres.

Soper-Wheeler is not trying to eliminate fire. Their goal is to lessen understory (*see photo below*) so that any fires in the area will be low intensity and minimally impact the trees. The goats are in Strawberry Valley which is approximately 3,500 feet elevation. As winter approaches, they will be grazed at lower elevations. The project has been in place for less than a year and is working.

I was taken to a site with two paddocks. The goats had been in the first paddock for several weeks and were being moved to the adjacent paddock. The paddock they had been in had considerable brush removed. Timing of when to move was partly being based on when brush removal had reached a point when the goats would start grazing pine seedlings.



A closer look at "understory."

On this day, that time had been reached. Even though there was still some brush, there was a real danger of some of the pine seedlings being impacted. The move consisted of opening a gate and calling to the goats. They readily came and entered the new paddock.

The most striking thing about the move was the sound of chewing. The goats eagerly munched on sweet birch and manzanita. They especially love sweet birch. They spent the first 45 minutes grazing close to where they had just moved and then began to move into the new paddock.

The Kikos have worked particularly well with minimal health or management problems. This is a must due to the extensive nature of the area being grazed. You cannot afford the time or expense to constantly having to provide extra care for the goats.

Goats Unlimited is successful because they understand management-intensive grazing principles. They are set up to provide temporary fencing, water, and animals trained to respect electrical shock. Guard dogs are an essential component for predator protection. You should not try this at home unless you understand how all these pieces go together. It's not brain surgery, but you must know what you are

doing.

Goats can dramatically reduce fuel loads. I feel their use for fire control will increase over the next few years.

## Weed Control

Goats can also be used for weed control — for example, yellow starthistle. I receive calls all the time about what to spray to kill it or where to get biological control agents.

Sprays timed in conjunction with a followup seeding can go a long ways toward changing the starthistle landscape. Biological control has met with limited success due to the extremely long flowering period of yellow starthistle.

Another option is to find an animal that will graze it. Cattle and sheep have been used to grazing starthistle. Goats will graze the entire starthistle plant, including the seedhead. This allows goats to keep up grazing pressure for a longer part of the growth period.

Goats Unlimited is currently grazing a field of yellow starthistle at a vegetable farm. This farm also has an old olive orchard. The goats have gone through each field and grazed the starthistle once. They are about to go though a second time to gaze regrowth. Rest periods are approximately 45 to



55 days. This is the first year for the goats, so we will need to wait and see what happens next year.

## Pruning

Goats can also prune old orchards and bring them back into bearing fruit. Goats Unlimited has done this in Hawaii. It works best to turn the goats in and let them do the initial pruning. After you pull them out, you can do any followup pruning necessary. The goats can also bark the trees to stimulate them to start bearing fruit again. You have to watch out because a little bit of barking helps, too much will kill the trees. Again, this is the first year for the goats and we will need to wait and see happens.

## Final Thoughts

Goats are good! I hope you can see that from the newsletter. They are a tool that can provide many benefits for ranchers.

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