MARKETING OF WEED CONTROL

Lani Lamming

Ewe4ic Ecological Services
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Great Organic Agricultural Tools

Goat, that is. And there are over 1,200 cashmere goats in town cleaning up Crow Creek and Dry Creek drainages. Bob Lee, City of Cheyenne Environmental Manager, has worked these beautiful weed eaters into his progressive Integrated Pest Management (IPM) Program. Bob has reduced drastically the chemical inputs while increasing alternative tools over the past 28 years in dealing with Cheyenne’s insect and weed problems. Weeds along Crow and Dry Creeks pose a challenge, especially noxious weeds like Leafy spurge, Dalmation toadflax, Purple loosestrife, and Canada thistle. “Noxious” is a legal term that describes certain non-native, aggressive, invasive plants that threaten our native ecosystems. These aliens have no natural enemies or competitors and once introduced by accident or on purpose, they potentially can displace native plants in our environment. When native plants are gone, neighborhood species that depend on these plant cannot survive: insects, birds, fish, small mammals, reptiles, wildlife, and people. Wildlife and livestock habitat is degraded, diversity is lost, erosion increases, productivity decreases. The price is high for all of who pay direct costs of mandated noxious weed control in addition to indirect costs of lower water quality. There is a federal Noxious Weed Law that the President signed as an Executive Order in 1999 for Invasive Plant Management. Each state has its own Noxious Weed List as well as each county in every state. By law, landowners must control these listed noxious weeds when growing on their lands. However, property owners may choose from several available chemical, mechanical, cultural, or biological tools.

Bob Lee has opted to avoid chemicals near Crow and Dry Creek for optimum health of the water, land, and people. He chose to use managed goat grazing in combination with re-seeding of desired plants. Mayor Spiker and the City Council have committed to long term responsible and bio-rational management of natural resources and increased health of Cheyenne’s creeks as well as the citizens. Forethought and long term financial commitment will assure that water leaving the community is as high or of higher quality that when it came in. Ideally, this responsible community will send waters on to Nebraska free from harmful chemicals and noxious weed seeds. If Warren AFB will join the effort in the near future the goals from Crow Creek will be reached sooner and more efficiently.

“Weed” is a man-made word; plants do not care who their neighbors are. Plants are rooted to the ground and cannot run away so must protect themselves by making sharp spines or poison for defense, enduring late frost and early snow, severe wind, drought, and flood. Survival tactics are keen and those who can grow, reproduce, and compete in an open niche are rewarded. Some plants produce 500,000 seeds per plant and then disperse them by wind, water, your socks, wildlife hair, birds, the mud in car, and bike tire treads. More aggressive weeds produce seeds besides spreading by a vegetative root system and some can even poison other plants around them.

Weeds are symptoms that there is an underlying problem. Typical problems are drought, disturbed soil (constructions), poor soil quality, fire, flood, over-grazing, over-rest, and poor land management that remove competitive species, leaving open niches. A noxious weed requires minimal introduction to invade and thrives in an open niche. Americans are notorious for wanting
instant gratification and usually get an over-the-counter chemical to “kill the symptom” without asking why symptoms are growing there and “what is the real problem?” Short-sighted chemical weed control may result in a species shift, where one noxious weed is killed as another one replaces it that is resistant to that chemical. New chemistry is needed and the landowner is locked into continuous chemical use as symptoms are chased. Likewise, people sometimes get caught up in taking several different antibiotics, only to find themselves still sick but immune to all the drugs.

Weeds (symptoms) are indicators that land health is stressed. Looking beyond symptoms, land health is measured by four ecosystem functions: water cycle, mineral cycle, energy flow, and succession of plant community. The real problem lies in one or more of these categories and land managers may review land use goals to see which category needs augmented. Goals for Crow Creek are a functioning healthy riparian ecosystem where access allows the public to enjoy exercise while strolling with the natural world, where wildlife, fish, and birds can reproduce and live, and Cheyenne’s children may enjoy while they are playing, viewing, and learning.

Stability begins in the soil. All plant life above and microbial life below with micro and macro fauna depend on soil health and available nutrients. When noxious weeds are seen in full flower, the land manager is 2 years late. He should have been tending to the soil much earlier. Small mammals, insects, birds, reptiles, wildlife, livestock, and people depend on production from the soil and humans manage these resources. People in the 21st century typically are one generation removed from the land. Stability in the soil has a domino effect through its products, continuing up through individuals, families, communities, and corresponding economics.

In an arid environment, grazing is the most powerful tool for land management. Animal impact on the land with corresponding hoof action, manure additions, and selective grazing may be used to enhance ecosystem functions. Goats are browsers, not grazers, and prefer 10% grass, which is opposite to diet preferences of cattle and horses that prefer 90% grass. So goat grazing may be applied along Crow Creek and Dry Creek to stress noxious weeds while encouraging desired plants to be the best competitors. Seven hundred pounds of native grass seed mix was scattered during the goat grazing in May along Crow Creek in an attempt to increase desired plant diversity that all compete against the weeds.

Goats are advanced technology recycling machines that are self-propelled. They eat noxious weeds and brush in preference to grass, and recycle all consumed plants to organic fertilizer pellets that are scattered evenly on the grasses as they leave. Irrigation is accomplished by getting the goats a drink of water from the creek and depositing it a pint at a time up on the dry hillsides where grass seed has been sown. Hoof action from 600 goats (2,400 sharp little hooves) incorporates seed, plant materials, and fertilizer into the soil where all can help soil stability, our starting point. Bare ground is covered. Hooves break soil capping so water from rains and snows can be captured and used effectively without waste and run-off. Hoof action helps to mellow steep banks and slow erosion while plant cover is achieved. Federal Emergency Management Assistance (FEMA) requires that all trees and brush be cleared from water channels to minimize flood hazard along Crow and Dry Creek. Goats do an excellent job of trimming, pruning, and clearing plant debris that impedes water flow besides removing weed seed sources from the water ways. Goats have a narrow, triangular mouth and they chew and nibble very fast that result in most seeds being crushed. Enzymes and digestive juices further destroy weed seed viability. Goats have an enzyme in their saliva that detoxifies poison hemlock before they swallow. This allows goats to eat poison hemlock without harm to them. Poison hemlock threatens people, wildlife, livestock, and pets along Crow Creek and history tells us that Socrates committed suicide with hemlock.

The weeds along Crow and Dry Creek have a head start, but with goals and goats we can help desired species to better compete. Energy flow on several trophic levels can be achieved. Bare
ground can be covered with re-seeding efforts, hoof action, and fertilizer. Flood threats will be lessened by two-fold: cleaning brush and thick plant debris from creek bottoms that impede water flow while vegetating upper slopes to trap and hold precipitation for infiltration minimizes run-off and erosion. Increased diversity in insect, plant, bird, fish, and wildlife levels makes a healthy sustainable, neighborhood without chemical inputs. Displaced ag workers can make a living using the skills and knowledge they have. Their wealth of knowledge can be recycled to young people who want to pursue ag employment and generations can move back toward the land. Economics can be stabilized in the community where no additional inputs are needed to allow three families to make a living.

All Cheyenne people are invited to come look at their land. Greenway Friends are cleaning trash, i.e., human plastic and paper (goats do not eat tin cans). If we could just get people to recycle their own trash........

**Ready To Rent for Weed Control and Extra Income**

Vail, Colorado, is known more for it's alpine skiing than it is for its agriculture. But it wasn't always so. Long before the 10th Mountain Division designated the pristine Rocky Mountains as a training ground for World War II soldiers headed to the Alps to fight German storm troopers on skis, goats and sheep roamed the summer-green slopes of the now-famous area and represented one of the few agricultural enterprises of the region. Now the goats have returned, and it's the skiers that are applauding.

The cashmere goats, owned by Jackson, Wyoming-based Ewe4ic Ecological Services, offer an alternative to using controversial herbicides when controlling serious weed problems. And Vail, with its abundant annual rainfall and mild summer temperatures, is teeming with wild weeds. Or was.

For the second year in a row, the Vail Town Council decided to rent the goats as an alternative to herbicide application in the environmentally-sensitive Eagle River watershed. Electric fences, dogs, and goat herders were used to help confine the animals. Several signs and cones were posted around the grazing areas in order to warn recreationists. There were no reported accidents involving outdoor enthusiasts or the herd with the exception of a pair of unrestrained pet huskies that killed two goats while grazing.

And the cost for goat rentals these days? The Town of Vail paid $1 a day per goat, plus the cost of shipping, a figure Town officials say was less expensive than the herbicide program they had originally planned.

But did the project work as planned? Suzanne Silverthorn, a spokesperson for the town of Vail, said town officials are "more than pleased" with the results. Although the figures on the total number of acres grazed during the eight days of the program (which ended last week) were not available, she said the Town plans inviting the goat herd back next year.

"The goats have successfully been used in recent years in the neighboring counties of Eagle, Summit and Pitkin, as well as in Montana, Wyoming, Nebraska, Oklahoma, Utah, and California," Silverthorn reports.

In addition to weed removal from grazing, Lani Lamming, owner of Ewe4ic, also seeded the grazed areas in Vail with native plants to combat non-native weeds. And a selective broad leaf herbicide will be used on the grazed land in order to kill the weeds' roots.
Will goat grazing represent the next great auxiliary enterprise for stock owners? Maybe not. But at least one Wyoming cashmere herd has the rare designation as the only herd alive that will annually vacation in America's busiest ski resort. What a deal for the goats!

Source: http://agriculture.miningco.com/library/weekly/aa082501a.htm
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100 Goats Can Eradicate Weeds From 1 Acre Per Day

By Jason Gewirtz
Camera Staff Writer

SUPERIOR — Goats chomped away pleasantly in the foreground. Out of view, nestled somewhere in the rolling hills of the Lastoka Open Space, weevils and beetles feasted on the same enemy.

For those advocating non-chemical approaches in the war against noxious weeds, the scene Thursday marked the wave of the future. With more than 50,000 acres of Boulder County-owned open space, the question of how to handle rampant weed growth has come to the forefront of public policy.

"Control measures on large tracks are the issue," said Tim Seastedt, a University of Colorado biology professor.

Boulder County and other local governments use an integrated approach to handle the growing problem of invasive weeds, which compete with native vegetation on thousands of acres in Boulder County. Weeds such as knapweed, leafy spurge and Mediterranean sage can be killed by hand pulling, mowing, burning, insects, goats or herbicide application.

But herbicide critics say that governments are too quick to go the chemical route before exploring other options. To highlight other possibilities, the Boulder chapter of the Sierra Club invited supporters of several alternative methods to show off their weed-be-gone stuff on the Lastoka property Thursday.

Seastedt has been conducting an experiment on the Lastoka property since 1997 using insects to kill the weeds.

He has released four weed-eating insects onto the 160-acre property to see how effective they can be in dwindling the weed count. Seastedt said initial results show that areas with the weevils and beetles have shown a 50-percent reduction in seed growth compared to areas without the insects.

But that percentage should be higher, he said.

"Asking why it's not doing better is a research question," Seastedt said.

Weed-eating insects have proven successful at reducing the weed count at Chatfield Reservoir near Littleton, said Jerry Cochran, a program coordinator for the Colorado Department of Agriculture. Since 1991, the department has been measuring the growth of diffuse knapweed and found the insects have spread and done their job.

But insects are just one means of weed control.

"I liken the whole thing to a jigsaw puzzle," Cochran said. "You don't have a complete puzzle until
all the pieces are in place."

Another piece that is gaining popularity is goats.

Lani Lamming, who runs Wyoming-based Ewe4ic Ecological Services, said that 100 goats can eradicate weeds from about 1 acre of weed-infested property per day. Lamming said federal, state and local governments as well as private property owners have begun hiring her goats to eat away at the problem for about $100 an acre.

"They like weeds, especially noxious weeds," she said as dozens of goats chomped nearby. "They love leafy spurge, it's one of their favorite foods."

Sierra Club member Kirk Cunningham said that as governments continue to acquire more public land, the issue of providing a range of weed-killing methods will remain important.

"It's a matter of emphasis," he said. "Given their restraints, they may not be doing a bad job. But we want to push them toward more non-herbicide uses."

Gobbling Goats Can Eradicate Noxious Weeds

By Janelle Holden
Cortez Journal Staff Writer

Socrates died from eating poisonous hemlock, but Lani Lamming’s goats love it.

On a daily basis, her 2,000 cashmere goats annihilate even the most toxic, noxious and prickly of weeds.

Lamming, founder of Ewe4ic Ecological Services in Alpine, Wyo., was in Cortez June 11 to speak to the Mancos and Dolores soil conservation districts.

Lamming, her husband, Fred, and her sons Reggie and Donny Benz have developed a profitable, environmentally sound alternative to the normal practice of controlling noxious weeds with pesticides – goats.

A former cattle rancher, Lamming obtained a master’s degree in weed science at Colorado State University, where she conducted research on how sheep eat weeds. Her research led her to goats, which eat more types of weeds at a faster pace than sheep.

After graduating from CSU, Lamming bought 100 cashmere goats and has built the herd to 2,000 over the four years she has been selling their services to landowners with weed-infested properties.
As in Montezuma County, weeds are a problem across the West. It is estimated that invasive species take over 4,600 acres of land per day and 1.5 million acres per year, Lamming said. They destroy animal habitat, increase erosion, create fire hazards and decrease land values. Many states, counties and cities – including the city of Durango and La Plata County – mandate that landowners control noxious weeds on their property.

Unlike cattle and horses, goats prefer weeds over lush grasses. Goats can also reach the more difficult places where weeds grow – cracks in rocks, steep hillsides and beneath bridges and highway overpasses. With intensive grazing over several years, goats can eliminate even the most aggressive weeds, including leafy spurge, purple loosestrife and musk thistle, Lamming said.

"The weeds are smarter than the plants, the goats are smarter than the weeds, and the only thing smarter than the goats is a border collie," said Lamming.

Lamming said she has never advertised her service; word of mouth has managed to build a lucrative business. Her clients have included the city of Denver, the towns of Meeker and Parker, and the Vail and Breckenridge resorts as well as public-land managers in several states.

Lamming used to charge by the acre, but now she charges per goat, from 25 cents to $2 per day, plus goats transportation costs.

Although Lamming doesn’t own land, she has never had to buy feed or supplements for her goats. They will eat weeds at any time of the year, she said, but the best time for grazing is the fall and winter when the weeds are down.

When the goats have finished their assignment, Lamming reseeds the newly turned soil with natural grasses fertilized by the goats’ waste. Any extra “fertilizer” is bagged and sold to organic farmers. The waste is not contaminated with seeds because of the unique shape of goats’ mouths and their powerful digestive enzymes.

Lamming said any type of goat will eat weeds, but she chose cashmere because of their "handleability" and wool product. The cashmere from the goats is sold for $15 an ounce.

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Goats Enlisted in War Against Weeds

By ROBERT WELLER
Associated Press Writer

VAIL, Colo. (AP) -- The "goats at work" signs along the bike paths of the nation's busiest ski resort are no joke.

Goats have been hard at work in Vail, munching on noxious weeds and providing an environmentally friendly alternative to herbicides that have proven ineffective in wiping out the weeds.
"In terms of environmental stewardship, this is a far better approach than using pesticides," Town Manager Bob McLaurin said.

Lani Lamming owns the herd of more than 600 goats, and she is also seeding the area with natural plants that will compete with the alien weeds.

She says the natural weed-eaters work much better than chemicals.

"Humans depend on eyesight. By the time they see weeds, it is two years too late. The goats can sense them," said Lamming, who has a master's degree in weed science from Colorado State University. "And they're better at vegetation management because there is no politics."

Some residents and guests say they prefer the animals over pesticides.

"They're cool," said Ann-Brit Hawkansson, 10, of Truckee, Calif., as she tried to persuade the shy goats to nibble on a carrot across the electric fence Lamming set up to keep them from wandering.

The fence only carries a small, harmless, charge, but enough to keep the goats in check.

Lamming's Alpine, Wyo.-based company, Ewe4ic Ecological Services, has been in business for four years.

In addition to Colorado, she has also done work in Montana, Wyoming, Nebraska, Oklahoma and Utah, charging $1 per goat for each day, plus the cost of shipping.

With the Agriculture Department estimating that weeds cost the economy $30 billion, there is plenty of demand for companies like Lemming's.

A company based near Sacramento, Calif., Goatweed eaters. com, has been in business for three years, renting South African Boer crossbreeds to get rid of weeds and reduce fire risk.

Ewe4ic Ecological Services: http://www.goatapelli.com

Goatweed eaters.com: http://www.goatweed eaters. com

Source: http://www.morningsun.net/stories/081901/sun_0819010054.shtml
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**Weed Eaters: Colorado Ski Town Turns to Goats to Munch on Weeds Along Bike Paths**

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