What Proved Important?

End-of-Project Evaluation of the Noxious Weed Control through Multi-Species Grazing Project

Washington State University-USDA Sustainable Agriculture Research and Extension Professional Development Project, 2002-2003

Jim and Barbara Long
NUView Evaluation and Learning
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Introduction

This evaluation (1) estimates the achievement of objectives of the WSU-SARE Professional Development Project, 2002-2003; (2) suggests values of the Project that seem to transfer into the future, perhaps, in new settings; and (3) identifies possible recommendations for consideration in replicating such an intense professional development effort. The report summarizes quantitative estimates and illustrates progress toward hoped-for achievements with narrative summaries of participants' experiences.

The Project's five objectives were:

1. Thirty participants, in 2002, will understand selected principles to consider in utilizing ruminant species to manage noxious weeds;
2. Six management support groups will be formed in 2002;
3. Six on-the-ground experiments will be initiated by July 2003;
4. A regional conference will be held in November 2003 to assess the impacts of the Project and to share lessons learned; and
5. A video documentary will be produced.

The two-year Project in the Pacific Northwest was designed to introduce, during Year I, a mix of 30 professionals to selected principles of noxious weed control through multi-species grazing to guide on-the-ground experiments during Year II. The concept of multi-species grazing as one tool was placed within the context of other tools for IPM—Integrated Pest Management. The mix of professionals included livestock producers and employees of local weed control boards, Extension, state resource agencies and federal land management agencies. They were offered a four-part curriculum: (1) Holistic Decision Making, (2) Land EKG/Monitoring, (3) Biological Planning/Planned Grazing/Multi-Species Grazing and (4) Low Cost Cow-Calf Production and Body Condition Scoring.

During Year II, project participants were supported in designing experiments to apply concepts introduced in Year I. Project participants and others were invited to the end-of-project conference, November 2003, to assess impacts, share findings and suggest future directions. Throughout the Project, participants interacted through a Project list-serve.

The structure of this evaluation report follows Claude Bennett's *Hierarchy of Evaluation Evidences* as a logic model: *inputs* support educational *activities* in which individuals *participate* and *respond*; participants acquire *new knowledge, attitudes, skills and aspirations* and develop *new practices* that, in turn, produce new intermediate *results* that contribute to hoped-for, long-term *outcomes*.

Evaluation data were gathered from participants through several means: a written pre-post-assessment of knowledge of principles introduced in the four-part workshop series during 2002 (Att. A); a written Transition Survey at the end of Year I (Att. B); a written end-of-project survey (Att. C) that included SNO Stories; end-of-project interviews with selected participants to catch participants' stories related to their goals for having enrolled in the Project.

Limitations to this evaluation report include the following:

- Response rate to the end-of-project survey was about 70%, mostly those who participated to the end of the two-year Project; little information was available from others who did not respond and did not continue with the Project.
- No skill change data were collected.
- The time frame within which evaluation data were gathered did not allow for results and outcomes to appear.
- Instruments to assess knowledge and attitude change were not validated.
- The evaluator team has only a general background in agriculture.
- Evaluators attended only the first of four workshops in 2002 and only the conference in 2003.

Evaluation Findings

This section summarizes findings structured according to the program logic underlying Bennett's Hierarchy of Evaluation Evidences.

Inputs. Washington State University received a $64,501 grant from USDA Sustainable Agriculture Research and Extension for the two-year educational experiment: Noxious Weed Control through Multi-Species Grazing. Principal Investigator was Donald D. Nelson, Washington State University Extension Beef Specialist. Dr. Nelson recruited other publicly and privately employed specialists to teach the four workshops. In addition, Holistic Management Certified Educators in Solar $, a non-profit organization, itself an outcome of the WSU Holistic Management Project, 1995-1999, consulted with individual Project participants.

Participants contributed time and other resources attending workshops, traveling to training sites, exchanging information among participants on the list-serve and applying for support to conduct future experiments. Participants contributed an estimated 273 days attending just the four workshops in Year I (the sum of workshop days multiplied by workshop attendance); if the attendees' time were worth $250/day, then the value of time attending workshops alone exceeds the value of the SARE grant—$64,501.

Activities. In 2002, four workshops were offered: (1) Holistic Decision Making as a framework for making management choices; (2) Land EKG as a way of diagnosing the health of grazing lands; (3) Biological Planning/Planned Grazing/Multi-Species Grazing as a means to integrate forage management and grazing management and (4) Low Cost Cow-Calf Production/ Body Condition Scoring to assess results of (3) above relative to the animals' health and productivity.

An end-of-project conference—*Weed Management Using Multi-Species Grazing*—was conducted in November 2003. An additional activity—*Planning for Profit Workshop*—was offered by members of Solar $ the day before the conference as a supplement to the Project. The workshop emphasized Holistic Management financial planning. Both activities were in Clarkston, Washington. (Att. D and Att. E) During the conference, a draft of the documentary video—*Healing the Land through Multi-Species Grazing*—was shown.

During Year II, Solar $ queried livestock producers about consulting with Project participants; two ranchers invited Solar $ members to visit participants' ranches. One Solar $ member visited a producer in south central Washington, another in southeastern Washington.

Some participants experimented through Management Support Groups and/or on their own during Year II. The level of involvement in these on-the-ground experiments and their significance for this evaluation are outlined below.

Participation. The 30 original participants lived in four states: California, Idaho, Oregon and Washington. Occupations of registrants represented livestock producers (10), university Extension (6), Federal agencies (5), county weed boards (4), state resource management agencies (3), university teachers (1) and agricultural communications (1). Among the federal employees were staff of USDA's Agricultural Research Service and Natural Resources Conservation Service and USDI's Bureau of Land Management. The mix of participants included men and women; their ages ranged from the 30s to the 50s.

Attendance in the 2002 workshop series was 26 for the first workshop, 21 for the second, 20 for the third and 18 for the fourth. About 55% attended all four modules; 39% participated in three and 5% enrolled in only two; 20% considered themselves "drop outs" because, for example, of job reassignments. In spite of attrition, the *mix* of participants through the two-year Project remained representative of the major occupational groups identified above.

Enrolment in the November 2003 conference—*Weed Management Using Multi-Species Grazing*—was lower than expected: 35 pre-registered; about a third were SARE Project participants; others were livestock producers (63%) and smaller percentages of graziers, consultants, a conservationist and employees of a weed board, Extension and federal agencies. Because of winter storms and other forces, fewer enrolled in one or both days of the conference.

Similarly, attendance in the pre-conference workshop, *Planning for Profit*, was lower than anticipated. Pre-registrants included another one-third SARE Project participants; 71% were ranchers; smaller proportions were Extension and agency employees.

In brief, though the number of participants was disappointingly low, a desirable *mix* of participants, across occupational groups, was retained and educational activities beyond the initial set of Year I workshops attracted twice as many non-Project pre-registrants as SARE Project pre-registrants—a mark of success in disseminating the idea of using multi-species grazing as a tool to manage weeds.

One of the three case experiences in the documentary video—*Healing the Earth through Multi-Species Grazing*—featured a SARE Project participant's on-the-ground experiment.

Generally, participation throughout the two-year Project in the list-serve was lively and valued by those who responded to the end-of-project survey (N=17). About 70% of respondents regularly tapped into the list-serve; about 41% occasionally contributed to the list-serve (Att. G).

Several participants (18%) contributed to the development of a group experiment; a much higher proportion (53%) experimented on their own. In rank order, respondents noted their involvement in the following Project-related activities:

Project Activity	**Percent**
Regularly read the Project's list-serve	70
Experimented on their own	53
Visited with members of agricultural/rural groups about the Project	47
Contacted government officials about opportunities related to the Project	41
Attended the Project's November 2003 conference in Clarkston, WA	41
Occasionally contributed messages to the Project's list-serve	41
Demonstrated results of experiment to members of the general public	35
Contributed to writing a proposal to fund an experiment	23
Helped design an on-the-ground experiment conduced by a Group	18

A smaller proportion or no one did each of the following: joined a Management Support Group, convened a Group, facilitated a Group, arranged for resource persons to meet with a Group, invited others to join a Group, helped monitor results of a Group experiment, examined data from a Group experiment, contributed money/in-kind resources to an experiment, helped produce the documentary video or invited someone to the November 2003 conference.

A few participants reported *other* Project-related activities such as monitoring a range, conducting field tours for producers and agencies, speaking at a conference, distributing information to the public.

To illustrate participants' activities substantively, below are two quotes. One Federal agency employee wrote: " Facilitated the authorization of Cashmere goats on public lands for leafy spurge control within the . . . Coordinated Weed Management Area." And a livestock producer said: "Helped put together a small research project looking at the grazing impacts of beef cattle on spotted knapweed."

Several interesting observations appeared: (1) Some participants continued a stream of Project-related activities although their individual circumstances changed through, for example, divorce, job change, relocation. Networks remained active though participants' physical locations may have changed. (2) Participants brought different orientations to the Project: some participation was directed more toward weed management; others toward the utilization of weeds as forage; still others toward the management of animals; and yet others toward marketing meat or wool. (3) Other participants defined their interest more functionally: some indicated an orientation toward research; others toward convening/facilitating/teaming/networking; others toward public information.

In short, progress toward the objective of experimenting can be attributed to *individuals* and, somewhat, to *teams*—representative of different orientations and skill sets—who pursued a specific interest related to the larger goal of managing for healthy lands, plants, animals, communities.

Reactions. The end-of-project survey asked participants to rate the *helpfulness* of each workshop in 2002 on a three-point scale (3 was high):

Workshop	**Mean Rating**
Holistic Decision Making	2.5
Land EKG	2.6
Biological Planning	2.7
Cow-Calf Production/Condition Scoring	2.5

Individuals' ratings across workshops ranged from 1 to 3, on a scale of 0 to 3.

On an earlier "Transition Survey" at the end of Year I, participants rated the *value* of each workshop: 100 was "priceless;" 0 was "useless":

Workshop	**Mean Rating**
Holistic Decision Making	81
Land EKG	82
Biological Planning	80
Cow-Calf Production	85

At the conclusion of the last instructional module in 2002, 17 participants ranked the *importance* of five pre-identified results of the training. Mean rankings (1 being most important) are shown below:

Outcome	Mean Ranking
Gain new knowledge	2
Network	2
Identify new resources	2.7
Raise new questions	3.3
Provide context for knowledge	3.4

In addition, some respondents identified additional values of the Project: working fewer hours, increasing ranch productivity, helping society and helping the environment.

In short, mid-way into and at the end of the Project, participants rated elements of instruction and intermediate results as important, valued and helpful for their purposes—even though some participants' purposes might have been beyond the Project objectives. Though the range of individuals' reactions to workshops was wide on helpfulness and value, mean ratings of these attributes across the four workshops tended to cluster closely.

Changes in Knowledge. An emphasis in Year I was to increase participants' knowledge of principles that underlie the practice of multi-species grazing to manage noxious weeds in pastures and on range lands. The Project coordinator and instructors identified six to eleven principles related to each of the four modules and collaborated with the evaluator to write multiple-choice questions as a pre- and a post-assessment of knowledge of principles. For each module, one set of questions was used for both the pre-and the post-assessment. (Att. A1, 2, 3, 4) For most modules the questions were duplicated on the same handout, each with a column on the left of the question for responses to the pre-assessment and another column on the right side for the post-assessment. Only those assessments for which the evaluator received both a pre- and a post-assessment were used to estimate the percent of participants who chose the correct answer before and immediately after each training module. Questions were assumed to be of equal weight; one choice identified by the instructor was assumed to represent the correct answer.

Module & Topic			% Correct		Change
	No. of Qs	No. of Rs	Pre	Post	
1. Holistic Decision Making	6	22	45	36	-9
2. Land EKG	11	17	71	73	+2
3. Biological Planning	8	15	83	84	+1
4. Cow-Calf Production	8	15	59	68	+9

The Holistic Decision Making module seemed to have confused some participants; the proportion of correct responses was lower *after* instruction. The assessments of Land EKG and

Biological Planning reflected only a modest increase in understanding—one or two percentage points. Low Cost Cow-Calf Production/Body Condition Scoring showed an increase of nine percentage points.

When examining change it is important to recognize pre-assessment scores. For example, the two modules that revealed only a small positive gain in knowledge were also the modules in which participants as a group started with relatively high levels of knowledge; the starting level of knowledge was lower for the module that demonstrated the greatest gain.

Changes in Attitudes. Changes in beliefs were utilized here as an indicator of changes in attitudes. The end-of-project survey asked participants to recall their beliefs about noxious weed control through multi-species grazing before 2002 and to indicate their beliefs now at the end of the two-year educational program. Pre-selected beliefs are listed below in rank order from the beliefs that changed most to those that changed least: (Numbers below are number of respondents.)

Belief	Pre	Post	Change
Multi-species grazing converts noxious weeds into marketable meat	10	16	+6
Multi-species grazing contributes to the health of riparian areas	7	13	+6
Livestock producers' on-the-ground trials contribute to good research	8	14	+6
Multi-species grazing contributes to range land diversity	10	14	+4
Noxious weeds reduce range land carrying capacity	11	7	-4
Multi-species grazing reduces fuel loads in fire-prone areas	10	14	+4
Noxious weeds damage the biodiversity of western range lands	10	7	-3
Economic impact of noxious weeds on range lands is severe	11	8	-3
Multi-species grazing can reduce reliance on herbicides	12	15	+3
A list-serve enables me to contribute information useful to others	7	10	+3
Different livestock species prefer different plants	12	14	+2
A list-serve enables me to find useful information	7	9	+2
Networking across interests helps achieve common interests	11	13	+2

Among the written comments about belief changes were these:

- A federal range management specialist: With herding, multi-species grazing can target undesirable weeds without a significant impact on native grasses, forbs, shrubs.
- A weed control district professional: I have long believed management is the key. Early detection and rapid intervention are also critical . . .
- A cattle producer: I did not and still do not believe in the use of chemicals and was glad to learn of alternatives to chemicals—like other animal species.
- Another livestock producer: Same beliefs, only refined and confirmed.

In short, for participants whose beliefs (attitudes) changed during the Project, the change tended to move in directions consistent with instruction: participants became more accepting of weeds as part of a plant community; participants became more positive about grazing as a way to manage and utilize weeds.

Changes in Aspirations. The key indicator of new aspirations is drawn from new goals articulated in participants' SNO Stories and from responses to a "what's next?" question about on-the-ground experiments. New goals are noted in the SNO Stories below. Here are illustrations of participants' new goals (aspirations) written as they reflected about their experiments and identified what they now plan to do:

- One busy rancher wrote: Make some changes.
- A rancher: Do my own research.
- Another ranch manager: Strip plant (to increase diversity in his pasture).
- Another rancher: Continue to explore the impact of beef cattle grazing on spotted knapweed.
- A cattle producer: Let the good grasses and legumes crowd out undesirable plants.

- A BLM range management specialist: Continue to use these animals (Cashmere goats) on public land for leafy spurge control.
- An ARS staffer: Implement grazing program for perennial pepperweed.
- A NRCS employee: Keep going with the Project (on-the-ground experiments with two ranchers and others).

- An Extension agent: Try to incorporate rotational grazing, land monitoring and body condition scoring.
- Another Extension agent: I intend to continue the . . . Browsing Academy for at least five years.

- A weed control district staff member: Continue experimenting on a small scale.
- A weed control district employee: Follow up on Land EKG, promote more land manager-grazier relationships and encourage more managed grazing projects.

Changes in aspirations appeared at different levels: Some were simply to "keep on truckin'"; others were much more specifically targeted, identifying the species of a problem *plant,* the species of *animal* and a *context* within which to further experiment.

Another key indicator of new aspirations is the set of three grazing experiments planned by Project participants and instructors/consultants for the next several years:

1. One Group reported at the dissemination conference that, with SARE support, it plans to work three years with two ranchers who want to enhance wetlands for migratory waterfowl. One experiment will test goats browsing invasive Russian olive.

2. A state lands department plans to test grazing regimes to regenerate conifers on logged lands.

3. Working with a livestock producer and SARE support, Solar $ plans to enhance a 500 acre range grazed by cattle and elk.

Practice Changes. A major indicator of practice change was derived from participants' SNO Stories. Participants were asked to write or tell about a story dubbed the SNO Story: Participants wrote about their original Goal for having enrolled in the Project, their **S**tarting point on this 1000 mile journey, where they are **N**ow—at the end of the two-year Project, what helped them move from **N** to **S**, what more might have helped, what might have interfered, how they dealt with those barriers, any new Goal and their **O**utlook for the future.

The SNO Stories were interpreted as evidence of a practice change by tracing an experimentalist cycle of learning: setting a goal, mobilizing resources to move toward that goal, monitoring resources' usefulness, setting a new goal and planning new strategies to pursue the new goal.

Below is the evaluator's interpretation of participants' SNO Stories as (1) indicators of doing things differently because of participants' action-reflection and (2) as indicators of new aspirations:

A rancher, wanted to gain knowledge to sustainably apply and monitor multi-species grazing within his resource environment. He **S**tarted at MilePost (MP) 600 and progressed to MP 900 on this thousand-mile journey. He identified people—Don Nelson, Charley Orchard and An Peischel—as influences that helped him most. His new goal is to explore the logistics of integrating an efficient and sustainable range goat enterprise into his cattle operation on both private land and public land he grazes.

A livestock producer wanted to gain additional knowledge but acquired very little. He **S**tarted at 900; he's **N**ow at 900. He indicated that enrolling more private farmers/ranchers would have helped and that too many government employees participated at taxpayers' expense. His current goal is to market "green" production directly to the public. He explained "there was virtually no emphasis placed on marketing" because "most participants were government employees." He suggested "In the future, marketing must be first priority . . . then show how environmental management fits into the big picture. For example, I have doubled cattle, sheep, hay and grain production in the last 12 years by managing for the environment. Salmon, creeks, range etc. have all benefited also."

A cattle rancher, **S**tarted at 600 and ended at 700 in learning more about multi-species grazing to control problem plants. He did learn "more about what could be done with goats" but time and a drought interfered with his doing things differently. His new goal is to "move forward with new knowledge and apply on the ground with my own livestock."

A dominant goal of a livestock producer/processor/direct marketer was to orient his fast-growing, family-run enterprise toward Holistic Management. He believes he's traveled from MP

600 to 800. One of the big helps was a consultation through the Project with a Holistic Management Certified Educator/an Associate with Solar $ who also produced and direct marketed beef. Other positive influences were the insights from Holistic Decision Making—testing guidelines and the examples of holistic goals. He believed the Project would have been more helpful with more emphasis on marketing—converting animals into marketable products. He would welcome future workshops that help him judge "How big is big enough?"

Another livestock producer Started at MP 400 toward her goal of learning about alternatives to chemical control of weeds; she progressed to MP 900. Helps included specific references to instructional content: when to graze to discourage weeds, grazing with different species of animals and the importance of soil and plant health to discourage undesirable plants. Something else that would have helped was plant identification. Barriers included a personal health problem and finding pasture, including a lease on Tribal lands. Her goals for the future include raising grass-fed livestock "to save natural resources and build the ones we've damaged" and offering tours to increase "income for me and other farmers and to educate rural and city people."

A participant who raises livestock wanted to learn more; he Started at MP 200 and reached MP 700. He identified further readings, personal contacts and motivation from the group as helps. He would have enjoyed ranch visits. Time constraints were a barrier; he expects to better manage his multiple career responsibilities in order to continue learning, implementing ideas and transferring information to others. He hopes the Project will plan ranch visits and schedule annual reunions.

A rangeland specialist with a federal agency wanted to learn the practical application of multi-species grazing with goats on public lands to manage leafy spurge. He Started at MP 300 and by the end of the project had traveled to MP 600. Helps included forces outside the Project: finding a local goat grazier, securing funding and adding a weed management specialist to his staff. A barrier was the task of modifying cattle-oriented range improvements for goats; he dealt with the task by allowing certain improvements to accommodate goat watering and control. His new goal is to continue the goat browsing trials on public lands but now with spotted knapweed in cooperation with the county Extension agent. He hopes to find—or convert—a goat herd to graze spotted knapweed.

An USDA researcher set a goal of learning about multi-species grazing as a weed management option. He Started at MP 100 and in two years was at MP 700. He identified three content-related helps: animals' dietary preferences, animal handling and low-cost cow-calf production. As another help, he mentioned discussing experiences with other participants. He would have welcomed seeing more demonstrations—specifically, on fencing and livestock handling. His current goal is to incorporate his new knowledge into future weed management research, particularly with the upcoming three-year experiment with the Barker Ranch and the Hercules Ranch—a project proposal he helped write. He hopes the Project will maintain the list-serve and foster continued networking.

One participant, a federal employee, wanted to support a wetland reserve program; she is employed now by a Resource Conservation and Development District. She Started at MP 200

and was **N**ow at 500. Interaction among others with different experiences was a big help. A barrier to her progress was internal to her agency. How did she reckon with this barrier? "Fly under the radar. Be creative." Her new goal is to share and apply what she learned through the Project to RC&D and, for a newly funded set of trials she helped design, to implement the experiments, publish results, conduct field tours. She hopes the Project maintains the list-serve and sponsors networking conferences and tours.

A state agency employee intended to network with others to find opportunities to reduce herbicide use. He estimated he **S**tarted at MP 400 and traveled to MP 800 for he did establish contacts, build relationships and share ideas. He suggested that touring projects would have helped even more. In spite of a lack of administrative support and a job transfer, he continued to search for willing partners. His new goal includes establishing a private custom grazing business. His recommendations for the future of the Project were to continue the list-serve, provide assistance in preparing grant applications and conducting an annual conference to share success stories.

One county Extension agent **S**tarted at MP 200 in learning about multi-species grazing and was **N**ow at MP 400. New knowledge, networking and improved time management were helps in his progress. A "lack of direction" was—and still is—a barrier. His new goals are to share his knowledge and encourage the formation of Management Support Groups for on-farm trials.

Another Extension agent set no goals and reported no progress.

A third Extension agent wanted to expand his familiarity with low-cost cow-calf production and multi-species grazing to focus on grazing as an economically-viable tool for weed control. He concluded that goats for weed control might prove feasible only with outside money. He felt the emphasis on Holistic Decision Making was either "too little" or "too much." He intends to adapt his education programs—like his *Grazing for Profit Workshop* with the local weed board—for large-*and* small-scale cattle producers. In five years, he wants to participate in a comprehensive evaluation. He hopes the Project, in the future, will "re-convince me" multi-species grazing is feasible from a marketing perspective, given market economics, dates of ethnic festivals and the objective of integrating forage availability and animal nutrient requirements.

A fourth Extension agent expected the Project to prepare him to supplement a grazing academy with more emphasis on browsing. It did. He offered a three-day Browsing Academy with goats in September 2003 at a university research field station. He did not take part in the Land EKG workshop; the workshop on low-cost cow-calf production was a repeat for him. He suggested more emphasis in the SARE Project on planning goat browsing, considering, for example, the site and the doe's age and stage of lactation. He also recommended more emphasis on financial planning, marketing and contracting and less emphasis on low-cost *cow*-calf production. His goals now include the development of demonstrations with goat graziers who manage brush in timber stands and the initiation of research on energy and protein values of plants and on recovery of browsed plants.

One participant was an agricultural writer/facilitator. A barrier to multi-species grazing in his region was a state policy against sheep and goats on winter bighorn sheep range because of disease concerns. He had not yet acquired funding to facilitate a new consensus.

A weed control district employee began with no goals; he ended with no goals; he indicated no progress. He explained: "I was very disappointed that our group was never able or designed to come up with basic trial recommendations for rehab. sites based on soil type, aspect, slope, annual precipitation etc. . . . I am no further along in providing answers and alternatives to the using public."

A noxious weed control board coordinator set a goal—to implement demonstration trials with a port authority and other cooperators. He Started at MP 450 and concluded at 600. Project workshops and implementing pilot efforts with sheep and horses were most helpful. He believes the Project's scheduling more time on Holistic Management—specifically, "managing for what you want"—would have helped clarify its principles. Barriers included internal "logistics and prejudice"; he dealt with the barriers by working out a "stay-over" site and trying to communicate with colleagues. He looks forward to encouraging more on-the-ground grazing projects and "spreading the word" and hopes the Project will continue to offer motivation and follow the results of his test trials.

In short, through their SNO Stories, five livestock producers reported positive practice changes; one did not. Three federal agency employees and one state agency employee indicated positive practice changes. Two Extension agents reported a conditionally positive change; another reported no change; a fourth Extension agent adapted information from the SARE Project to a browsing academy, an expansion of his grazing academy. An agricultural writer reported no progress on this dimension. One weed control district employee reported no progress; another described progress in bringing about personal and organizational practice change.

SNO Stories also further illustrated the range in new aspirations as participants described their new goals and plans. Some new aspirations were general; others were very exact.

Summary, Discussion and Recommendations

With a grant from USDA Sustainable Agricultural Research and Extension for a two year project focusing on noxious weed control through multi-species grazing, Washington State University, during Year I, offered a series of four workshops that highlighted principles to consider for on-the-ground experiments in Year II. The set of workshops introduced participants to a decision-making framework, a way to diagnose the health of land, a means to plan forage production and a strategy to assess the impacts of land and forage management on grazing animals. The curriculum now can be considered the beginnings of an "input" for future professional development efforts and Extension programs.

Though attendance among the 30 original enrollees dwindled through Year I because of changes in jobs and personal circumstances, a desired *mix* of participants was retained,

representing major occupational groups—livestock producers and employees of Extension, weed control districts, state agencies and federal agencies.

As a group, enrollees rated workshop instruction as important, helpful and useful. Knowledge gain across the four workshops varied: some participants completed the workshop on Holistic Decision Making more confused; the group started at a higher level of knowledge in and gained a modest level of new knowledge from two workshops—Land EKG and Biological Planning; the group gained the most knowledge from the fourth workshop on Low Cost Cow-Calf Production and Body Condition Scoring. The levels of knowledge before and after the workshops and the knowledge gain varied a great deal across individuals.

Two Project participants, during Year II, invited two Solar $ members—Holistic Management Certified Educators--to consult with them on their ranches; both livestock producers noted the value of those visits.

Few Project-related Management Support Group experiments were conducted. One, initiated by a weed control district coordinator, featured a cooperative experiment with a contracted grazier on port authority land. For another participant—an Extension agent who has been offering a Grazing Academy—the Project stimulated him and his volunteers to emphasize *browsing* and reinforced the importance of continuing the Academy several years more.

Participants indicated they experimented much more often "on their own" than in groups. For example, one rancher grazed sage and thistles differently with cattle and is likely to continue the general strategy.

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In addition, the Project offered a "dissemination" conference at the end of the two-year period. Though enrolment was lower than anticipated, the conference attracted others outside the Project and a *mix* of occupational groups, especially ranchers. A supplementary activity—a financial planning workshop the day before the conference—reflected a similar pattern of attendance.

A complementary activity of the Project was a list-serve; participants used this networking tool a great deal to find information and to contribute information.

Some participants identified what most helped them progress toward their goals: a decision making framework; specific people; particular units of instructional content; networking across disciplines, motivation from the group and several non-Project forces.

A few described what more might have helped: farm tours, field tours, more help in setting up Management Support Groups, additional instruction— goat husbandry, marketing, integrating grazing with the use of insects in an IPM program.

Barriers to their progress included a span of variables: personal circumstances, lack of direction, low-trust interpersonal relationships, little administrative support, complexities of forming a Management Support Group, work logistics. Interestingly, at the end of the first year, participants rated "networking" as important as "gaining new knowledge." Was networking a

way to help participants reckon with these barriers? Was the list-serve a valued resource for dealing with barriers? Indications are "yes."

Some participants' beliefs did not change; the Project, they wrote, reinforced or illustrated their early beliefs. Generally, among respondents who did change their beliefs, the changes appeared consistent with instruction: These participants became more accepting of weeds as part of diverse plant communities and as potential forage to harvest for growing animal products for markets.

Participants who experimented reflected about their goal and experiment and set new goals. Their new goals were viewed here as indicators of practice changes and new aspirations. Often, their new goals/practices/aspirations were specific to a weed, a species of animal and an organizational or environmental setting.

What participants found most important about this SARE Project varied widely: some referred directly to instructional content; others identified people as most helpful; still others mentioned networking and group motivation; some recalled a specific instructional approach—reading, workshop, list-serve or on-the-ground experiment, for example.

Recommendations for the future of the Project, derived from participants' SNO Stories, identified the following possibilities:

- Add new content: soil health; roles of insects as part of a weed IPM program; relationships between grazing/browsing and beneficial insects; plant identification; goat husbandry, fencing, livestock handling, body condition scoring for species in addition to cattle; use of guard animals; marketing, particularly with ethnic communities; research design and methods; organizational development and change; designing public information campaigns.
- Place grazing within the context of other plant management tools—fire, herbicides, cultivation, roguing, insects, diseases . . .
- Emphasize Holistic Management more—or less!
- Continue certain tools—such as the list-serve—for learning and networking
- Sponsor regular reunions for review and renewal. Could some be conducted electronically?
- Follow experiments; conduct tours of experiments among participants and others; summarize and publish findings; apply findings.
- Offer grant writing assistance.

In addition, other possibilities emerged from this evaluation, particularly as related to the weak link—broad, persistent participation:

1. *Recruiting and selecting enrollees*: Ask employee applicants to seek written endorsements of the Project and their participation from their supervisors; ask employee and supervisor to articulate a Project goal important to the supervisor, employee and constituency; specify a contingency in case of personnel changes (Can a substitute be appointed?); clarify

applicants' roles in the agency, for example, a planner role, an administrative role, a technician role and illustrate how instruction can be adapted to *their* decisions. Such an agreement within an agency might serve as a starting point for contracting with the Project for instruction and experimentation.

2. *Team building*: From Day I, start building teams. Acknowledge participants' orientations across professions and the time and trust required to design comprehensive on-the-ground trials. Teams might include, for instance, a land manager, a forage specialist, an animal scientist, a researcher, a marketing specialist, a public outreach person, a facilitator. Reserve times to outline experiments conducted within a set of contextual variables—climate, land, plants, animals, organizations, markets. Recognize that some teams may work as a team; other teams might advise individuals.

3. *Role of itinerate advisors*: Continue to offer one-on-one consultations with individuals and with teams; build on the experiences of Solar $ members; perhaps, emphasize experimental design, implementation, monitoring, ways to translate findings, how to generalize beyond *a* trial, how to disseminate findings to policy makers and members of the public, how to generate support for finer and finer experiments. Continue contracts whereby Solar $ members consult with teams/individuals designing experiments.

4. *Retaining what is—or might become—important.* Midway, "to provide a context for knowledge" was rated low in importance. Yet, some participants remarked later about the importance of the Project's enabling them to do just that—for instance, shifting from an orientation on "weed control" to "creating desirable plant communities" or shifting from "time management" to a decision making framework for a family to define member roles. So, even though at one time in the succession of Project activities a purpose may not seem obvious or important, programmers might want to retain that objective because individual participants may hold that purpose as important or may come to appreciate its importance later.

5. *Time, timing and use of time*. One year of instruction and one year for Group demonstration projects proved too brief for most participants. An alternative is to infuse a year of instruction about principles with more guidance on designing a field experiment, teaming across disciplines and adapting an experiment to a given environmental and organizational context important to team members. That context would likely consider a whole host of variables—the natural environment, market demands, business factors, personnel policies, contract terms, fiscal arrangements, organizational climate, political realities—all those variables participants in 2003 identified as forces for and forces against progress toward their goals for having enrolled in the Project. Then allow at least an additional year for field demonstrations.

Use workshop time to bridge from "principles" to "practices." Schedule time to plan experiments as teams; schedule reports about team and individual experiments at subsequent workshops. At the end of a workshop assess participants' beliefs and levels of knowledge about the upcoming workshop topic; use these assessments to fine-tune the next workshop.

To capitalize on time between workshops, consider more deliberate use of the list-serve to nurture experimentation; consider telephone conferences/video conferences for sharing and coaching and to prepare summaries for upcoming face-to-face workshops

Place this education program within the context of social change models. For instance, recognize the time required to diffuse innovations among innovators, early adopters, the early majority and the late majority; recognize the time required to facilitate folks through a process of awareness, interest, mental evaluation, trial and decision.

Consider teaching backwards: start with data about market opportunities, available animals, sources of forages, weeds as a forage; introduce a framework to handle the complexities of integrating all these elements—specifically Holistic Management; overview principles to consider in discovering empirical relationships; design experiments; reflect systematically on findings.

6. *Project marketing*. Market this project to others—persons interested in weed control, forage production, re-forestation, fuels reduction, riparian management, right of ways, mine site rehabilitation, minimum tillage, vegetation management to minimize insect-borne diseases, animal production, marketing; those interested in university extension, professional development, agency policy development and administration, public decision making, communicating technical information to the general public. The documentary video will likely become a useful communications tool, as well as on-farm trials, case studies, tours, demonstrations, short courses being planned by Extension faculty and others.

This evaluation also suggested other opportunities related to instructional and organizational development:

1. *The nature of educational objectives and educational evaluation*: Four of the five Project objectives were oriented more toward "activities"—form management support groups, conduct experiments, offer a conference, and produce a documentary video. The first objective—participants learn principles—seemed more appropriate for an educational project. Activity-oriented "objectives" can be adapted by asking *why* the programmer intends to do these activities, why, for example, form a group—particularly since, as we have seen here, many more *individuals* experimented on their own. *Why* produce a video? The objective might be re-shaped to "others' understand the values of multi-species grazing." Being clear about the video's purpose—*whose* understanding, for instance—may help design the video itself. Is the video intended for persons who weigh biological v. chemical controls of weeds? Is the video for managers who implement a given grazing regime?

Evaluation data gathering instruments used in this assessment to estimate change in knowledge and attitudes might serve other, similar professional development projects but should be validated and further adapted to catch results of *individual's* experiential learning, noting, particularly, individuals' unique orientations toward their involvement.

2. *Scope and context of instructional content*: Continue to introduce supplementary ideas, information, frameworks that reinforce instructional objectives, the work, for example, of Bud

Williams on low-stress animal handling; Fred Provensa and the BEHAVE project on adapting animal behavior; Donald Schon's emphasis on "research-in-action" and "reflection-in-action" (in his *The Reflective Practitioner: How Professionals Think in Action*, Basic Books, 1983); others' research on "learning organizations," systems thinking and social marketing (e.g. Gladwell's *The Tipping Point, How Little Things Can Make a Big Difference.* Little, Brown and Company, NY:2002). Participants found these large ideas intriguing.

3. *Institutional development*: Link this educational experiment with the large question among land-grant universities about their "synthesis" role, in addition to their recognized roles of research, teaching and Extension. (Don Bushaw, "The Scholarship of Extension," *Journal of Extension*, August, 1996, derived, in part, from Ernest J. Boyer, *Scholarship Reconsidered: Priorities of the Professorate*, Princeton University Press, 1990.) The dynamics of integrating knowledge—so vividly demonstrated in this SARE Project—are qualitatively different from traditional conceptions of land-grant university roles of generating knowledge, teaching knowledge and extending knowledge. This Project illustrates the dynamics of building capacities for participatory research, collaborative learning, reflection-action (praxis), building learning organizations, systems thinking, and stakeholder involvement in public decision making. True to an underlying premise of Holistic Management, this SARE Project *can* contribute to creating responsive public institutions--including the land-grant university.

In sum, participants' reflections about this SARE Project in 2002-2003 suggest possible refinements to consider in replicating such a concentrated, intricate professional development endeavor; the experience also suggests broad implications for *programs* that facilitate adult learning and for public *institutions* that support adult learning programs.

Attachment A

Pre-Post-Assessments of Knowledge

1. Holistic Decision Making
2. Land EKG
3. Biological Planning/Grazing
4. Low Cost Cow-Calf Production and Body Condition Scoring

Attachment A-1

Pre/Post-Assessment: Noxious Weed Control Through Multi-Species Grazing, Feb. '02
Please print your name here_____. (Respondents circled the letter of the most appropriate choice before the class and drew a triangle around the letter of the most appropriate choice after the class.)

Module One: Holistic Decision Making, with Doug Warnock and Sandy Matheson

1. Managing wholes means:

    a. Letting your lender decide what you should to do this year
    b. Anticipating outcomes of decisions on all parts of the system
    c. Asking all family members to vote
    d. Relating physical, economic and social factors

2. A holistic goal helps most by:

    a. Prioritizing problems
    b. Inventorying resources
    c. Identifying alternative solutions
    d. Defining what you want to achieve

3. If you seek a stable plant-animal community, then:

    a. Increase biodiversity
    b. Schedule production operations several years ahead
    c. Manage a monoculture consistently
    d. Increase variety of plants *or* animals-but not both

4. To maximize movement of precipitation into the soils, then:

    a. Incorporate soil amendments
    b. Regulate water flow rate
    c. Maintain soil cover with live plants and litter
    d. Mechanically change soil structure

5. The key to pasture/range productivity is:

    a. Precipitation
    b. Grazing and recovery times
    c. Number of AUs
    d. Mix of livestock species during summer

6. According to Allan Savory, "brittleness" refers to:

    a. Ground cover
    b. Forage hardiness
    c. Alkalinity in root zone
    d. Effective moisture and its influence on decomposition of organic matter

Attachment A-2

Pre/Post Assessment: Land EKG (Charley Orchard & Jim Long)

Name _____ **PNW SARE Project**

Circle date: May 13-15, 2002 or **May 16-18, 2002**

Before Workshop Circle **one** choice per question **After Workshop**

1. A successful agricultural producer:

a Uses natural pesticides to protect soil micro-organisms **a**
b Maximizes economic return on energy sold **b**
c Is likely to be BQA-Certified, assuring beef quality and receiving a premium price **c**
d Efficiently converts fossil fuels to food calories using solar powered irrigation techniques **d**

2. To capture more solar energy:

a Blend early intensive, double stocked grazing with rest rotation **a**
b Use staggered fertilization to extend the growing season **b**
c Manage for diverse plant communities to maximize leaf surface area **c**
d Use photo voltaic panels to store power in deep cell batteries **d**

3. To increase leaf surface area:

a Build healthy soils and biotic diversity **a**
b Start over with new, research-based hybrid plants **b**
c Submit leaves for tissue analysis **c**
d Mix grasses and legumes **d**

4. If you seek relatively stable biotic systems in pastures and rangelands:

a Move toward a manageable monoculture **a**
b Rotate uses of land across several seasons **b**
c Select locally adapted species **c**
d Maintain or increase biological diversity **d**

5. If you want to maintain or improve grass vigor:

a Prune lateral roots **a**
b "Shock" plants with fire **b**
c Remove leaves and rest the plant **c**
d Spray a light application of a contact herbicide to foliage **d**

6. "Over grazed grasses":

a	Received a second bite too soon	**a**
b	Delay regrowth by one sixth of the growing season	**b**
c	Decrease and forbs increase	**c**
d	Exceed 55% utilization for two consecutive seasons	**d**

7. Good mineral cycling will be indicated by:

a	A thin layer of litter 1-2 mm above the soil surface	**a**
b	A diverse litter component from 2-3 years old	**b**
c	At least two earthworm casts/square yard	**c**
d	A rapid incorporation of litter	**d**

8. If a plant has not been grazed for two years:

a	It is over-rested and decadent	**a**
b	It may have just recovered from its last grazing	**b**
c	Its seeds will be 50% more viable than after one year of rest	**c**
d	Approximately 50% of the roots will be dead	**d**

9. If you could track only one indicator to determine rangeland health, it would be:

a	Total forage production	**a**
b	Species richness	**b**
c	Surface cover	**c**
d	Litter incorporation	**d**

10. The Grazing Response Index places twice the value on:

a	*Intensity,* because > 50% utilization on uplands is not sustainable	**a**
b	*Frequency,* because length of grazing period ultimately affects rest periods	**b**
c	*Rest*, because a rested plant is a healthy plant	**c**
d	*Phase II leaf height,* because ≥6" indicates plants have safely entered Phase II growth	**d**

11. How would you expect to score a 20-year exclosure graphed with a land EKG?

	Mineral Cycle	Water Cycle	Plant Com.	Energy Flow	
a	low	low	low	low	**a**
b	high	high	high	high	**b**
c	low	high	average	high	**c**
d	low	high	average	low	**d**

Attachment A-3

Pre/Post Assessment: Biological Planning/Grazing Module

(Craig Madsen, An Peischel, Maurice Robinette) August 13-15, 2002

PNW SARE PD Project: Noxious Weed Control Through Multi-Species Grazing

Your Name _____

Before Workshop	Circle one choice per question:	After Workshop
	1. The livestock manager's goal is to maximize:	
a	Production of meat	**a**
b	Harvest of sunlight	**b**
c	Retention of soil moisture	**c**
d	Uptake of plant nutrients	**d**
	2. The factor that most influences photosynthesis is:	
		a
a	Leaf surface	**b**
b	Soil fertility	**c**
c	Available soil moisture	**d**
d	Ambient temperature	
	3. Which best summarizes the major focus of biological planning:	
		a
		b
a	Animal impact-grazing rotation-fencing	**c**
b	Soil litter-erosion control-moisture management	**d**
c	Grazing-animal impact-soil surface management	
d	Aeration of the root zone-sequence of animal species grazed-monitoring	
	4. The most fundamental set of management tools includes:	
		a
a	Soil amendments-pasture rotation-mechanical distribution of manure	
b	Planting "cool season" forages-alternate year grazing-deep irrigation	**b**
c	Photo series-tensiometer-leaf color gauge	**c**
d	Rest-grazing-animal impact	**d**

5. The best set of guidelines for selecting management tools is:

a	Stocking rate, time, stock density, heard effect	**a**
b	Mixing anaimal species, delaying spring grazing, stopping grazing before seed set	**b**
c	Rotational grazing, rest, expected economic return	**c**
d	Water cycle, community dynamics, mineral cycle, energy flow	**d**

6. To convert more forage into meat:

a	Provide mid-day shade	**a**
b	Wean the largest calf	**b**
c	Divide grazing cells	**c**
d	Avoid early morning grazing	**d**

7. Overgrazing is a function of:

a	Too many animals	**a**
b	Time	**b**
c	Single-species grazing	**c**
d	Stock density	**d**

8. The foundation of Holistic Management is:

a	Planned grazing	**a**
b	Eco-system processes	**b**
c	Futures thinking	**c**
d	Holistic goal	**d**

Attachment A-4

Pre/Post-Assessment

Low Cost Cow/Calf Production and Body Condition Scoring with Dick Diven, Jay Jenkins and Don Nelson

WSU SARE Project November 2002

Your Name _____

Before Workshop	**Circle one choice per question**	**After Workshop**
	1. To increase conception rate, consider primarily:	
a.	Season of year	a.
b.	AI	b.
c.	Sire's progeny	c.
d.	Cow's body condition	d.
	2. For cows that calve after December 22 expect the postpartum interval for each day after winter solstice to be reduced by:	
a.	0.04 days	a.
b.	0.40 days	b.
c.	4.0 days	c.
d.	4.4 days	d.
	3. Compared to the cow's requirement for maintenance and lactation, the cow's dietary energy requirement for conditioning is:	
a.	Higher	a.
b.	Lower	b.
c.	About the same	c.
d.	Uncertain	d.

4. To help a cow fully utilize forage, then, relative to energy consumed, supply adequate:

a. Grain a.

b. Mineral b.

c. Dietary degradable protein c.

d. TDN d.

5. If you plan to feed an oilseed, consider each alternative oilseed's:

a. Energy a.

b. Ease of pelleting b.

c. Cost c.

d. DIP/UIP d.

6. To supplement a forage, adjust the amount of supplement to the animal's:

a. Age a.

b. Stage of gestation b.

c. Physiological requirements c.

d. Genetic history d.

7. A key reference point to ascertain whether a cow is in BCS 4 or 5 is:

a. Visible outline of spine a.

b. Muscle atrophy b.

c. Fat in brisket or flank c.

d. Udder fat and patchy fat around tail head d.

8. To change by one body condition score, a cow needs to gain or lose:

a. 30 to 40 lbs. a.

b. 40 to 60 lbs. b.

c. 60 to 80 lbs. c.

d. 100 to 130 lbs. d.

Attachment B

Transition Survey

WSU SARE Project: Noxious Weed Control through Multi-Species Grazing

November 2002, we're at a transition time in the Project. We're wrapping up the year of "class room instruction" and looking forward to another year for field laboratory projects. We'd like to pause a moment to listen to you—something about "monitoring," I think Doug and Sandy called it way back in February.

1. Which of the sessions did you attend? (Check each one you attended)

_____ Holistic Management, with Doug Warnock and Sandy Matheson, Clarkston, Feb. '02

_____ Land EKG, with Charley Orchard, Cheney, May '02

_____ Biological Planning/Grazing, with Craig Madsen, An Peischel, Maurice Robinette, Spokane, August '02

_____ Low-cost Cow-Calf Production/Body Condition Scoring, with Dick Diven, Jay Jenkins, Don Nelson, Pullman, Nov. '02

2. What was your "excuse" for each session you may have missed?

3. What are the immediate outcomes of the year's training? (Write in other-valued outcomes; then, rank all outcomes from most important to least important: 1 = most important.)

Rank Outcome

_____New *knowledge*

_____Creating a *context* for my knowledge

_____Raising new *questions*

_____Identifying new *resources*

_____*Networking* with others who share my goals, concerns

_____ _____

4. Which sessions were more valuable to you? less valuable?
   (Give each session a score: 100 is priceless; 0 is useless)

   Score Topic

   _____ Holistic Management

   _____ Land EKG

   _____ Biological Planning/Grazing

   _____ Cow-Calf Production/Body Condition Scoring

5. What are your *suggestions* for such training "next time"?

6. So far, what are your *plans* for Year II-- the field application of knowledge about multi-species grazing to manage noxious weeds?

7. What are your *suggestions* for Year II?

8. Other comments? _____

For follow up, please write your name here:_____

By Nov. 15, please give your completed survey to Don Nelson; or, in November, send to Jim Long, Evaluator, 895 Sable Dr., Roseburg OR 97470; jlong@mcsi.net; fax: 541-673-3713

Attachment C

End of Project Survey of Participants
Noxious Weed Control through Multi-Species Grazing
Project Fall 2003

This survey has two purposes:

1. Estimate the extent to which the **Project** achieved its objectives and **you** achieved your objectives for participating and
2. Identify what helped and what more might have helped.

I. For each session in 2002, please circle whether you attended none, part or all of the training and circle its helpfulness in achieving your objectives for participating in this two-year Project:

Training Session	**Attended**			**How much help?**			
				None	**Little**	**Some**	**A Lot**
1. **Holistic Decision-Making** February, Clarkston With Doug Warnock, Sandy Matheson	None	Part	All	0	1	2	3
2. **Land EKG** May, Cheney With Charley Orchard	None	Part	All	0	1	2	3
3. **Biological Panning/Planned Grazing** August, Spokane With M. Robinette, C. Madsen, A. Peischel,	None	Part	All	0	1	2	3
4. **Low Cost Cow-Calf Production/ Body Conditioning Scoring** November, Pullman With Dick Diven, Jay Jenkins	None	Part	All	0	1	2	3

I usually attended training with:

_____No one else
_____Family member
_____Extension worker
_____Other agency professional_____

Who are you? I am a/an:

_____ Livestock producer
_____ Extension employee
_____ NRCS employee
_____ Weed control district employee _____
Other_____

Age bracket?

_____ 20-29	_____ 40-49	_____ 60-69
_____ 30-39	_____ 50-59	_____ 70+

II. Please check (√) your **Project-related activities**:

_____ Joined a local Management Support Group (MSG)
_____ Convened a MSG
_____ Facilitated a MSG
_____ Arranged for resource persons to meet with our MSG
_____ Invited others (non-Project) participants to join the MSG
_____ Helped design an on-the-ground experiment conducted by the Group
_____ Helped monitor results of the Group's experiment
_____ Examined data from the Group experiment
_____ Experimented on my own
_____ For my own experiment, I called on the following types of people for help:

_____

_____

_____ Contributed money/in-kind resources (worth $_____) to experiment
_____ Demonstrated results of Group/my experiments to members of the general public _____
Contributed to publishing the findings from an experiment
_____ Helped produce a video that documented Project activities and impacts
_____ Visited with members of agricultural/rural groups about the Project
_____ Contacted government officials about opportunities related to this Project
_____ Regularly read the Project's list-serve messages
_____ Occasionally contributed messages to the Project's list-serve
_____ Contributed to writing a proposal to fund an experiment
  _____ In 2002
  _____ In 2003
  _____ In the future
_____ Attended the Project's November 2003 conference in Clarkston
  _____ Day 1
  _____ Day 2
_____ Invited someone outside the Project to the November 2003 conference

Related to the Project, 2002-2003, what else did you do?_____

_____

_____

From the on-the-ground experiment(s), I found out: _____

_____

_____

Based on these findings, I now plan to: _____

III. Below are **belief statements**. Please check (√) each statement you agreed with strongly ***before*** the Project and check (√) each statement you ***now*** agree with strongly:

Then	**&**	**Now**	**Belief**
_____	&	_____	Noxious weeds damage the biodiversity of western rangelands
_____	&	_____	Noxious weeds reduce rangeland carrying capacity
_____	&	_____	Their economic costs are severe
_____	&	____	Chemical and mechanical controls of noxious weeds are worth their costs
_____	&	_____	Chemical and mechanical controls attack just weeds and do not harm the environment
_____	&	_____	Different livestock species prefer different plants
_____	&	_____	Good grazing manages for desirable plants
_____	&	_____	A plant's top growth is proportional to the plant's root growth
_____	&	_____	Multi-species grazing converts noxious weeds into marketable meat
_____	&	_____	Multi-species grazing reduces fuel loads in fire-prone areas
_____	&	_____	Multi-species grazing can reduce reliance on herbicides
_____	&	_____	Multi-species grazing contributes to rangeland diversity
_____	&	_____	Multi-species grazing contributes to the health of riparian areas
_____	&	_____	A list-serve enables me to find useful information
_____	&	_____	A list-serve enables me to contribute information useful to others
_____	&	_____	Livestock producers' on-the-ground trials contribute to good research
_____	&	_____	Networking across interests helps achieve common interests

Comments about any changes in your beliefs?

I live in the state of: _____

Are you a "graduate" of the WSU Holistic Management Project, 1995-1999?(circle)
Y N

IV. Finally, in a summary way on this two-year "1000 mile journey" toward your Goal, please write a brief **"SNO Story":**

- What was your Goal in 2001/2002 for participating in this Project? (Write in a summary of your **Goal** in the bottom box.)
- At what milepost did you **Start**? (Write an **S** on the road.)
- Where are you **Now**? (Write an **N** on the road at the appropriate milepost.)
- What helped you move from **S to N**? (List three, four things that helped the most.)

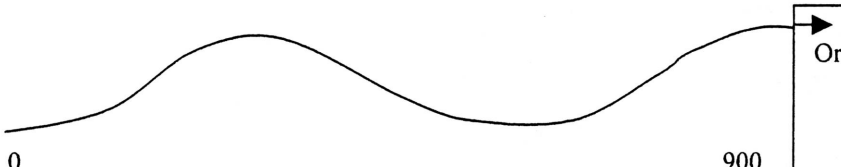
  _____
- What more might have helped? (List some additional things that would have helped.)

  _____
- What might have interfered? (List important barriers you ran into.) _____

  _____
- How did you deal with these barriers? (What did you do to overcome one or two of these barriers?) _____
- What is your Goal now? (Write your current Project-related Goal in the upper box.)
- What is your Outlook? (Related to your current Goal, what's next for you?) _____

  _____

New **Goal:**



What Project-related activities might help you now move further toward your current Goal? (Write a couple three suggestions for the future of this Project as related to your current Goal.)

_____

_____

Attachment D

"Weed Management Using Multi-Species Grazing" Conference

November 21-22, 2003
Quality Inn & Suites, Clarkston, WA

Introduction

Come learn about environmentally friendly, solar-powered, self-propelled weed-eaters that carry their own fermentation vat and fertilizer spreading capability while producing no fossil fuel exhaust or noise pollution. They are leather covered and come in various shapes, sizes and color combinations. Several models are available that can target specific types of problem plants.

Does this sound too good to be true? No, not really. What we are doing is looking at an old tool in a new light. We are talking about multi-species grazing being used as one of the tools in an integrated pest management program, where the pests are invasive plants. Different animal species prefer different kinds of plants. In general, cattle prefer grasses, sheep prefer forbs (i.e., weeds) and goats prefer browse (i.e., woody plants). Use of this tool provides the opportunity to have grazing animals utilize plants, that are expensive to control by other means, as feed sources, thereby turning a liability into an asset. By describing what you want the future plant community to look like, you can plan a grazing program that will complement other tools in the process of achieving it.

This conference is the culmination of a two-year project entitled, Noxious Weed Control Through Multi-Species Grazing, that was funded by the USDA Sustainable Agriculture Research and Education/Professional Development Program. There are 30 participants from four states that represent state and federal agencies, county weed boards, Extension and ranchers. The first year of the project involved a series of workshops that covered the principles of holistic decision-making, planned grazing, multi-species grazing, monitoring and low-cost cow-calf production. In the second year, these principles served as the basis for the design and implementation of on-the-ground projects, some of which are being funded by grant proposals written by the project participants.

Speakers on the conference program will talk about their actual on-the-ground experiences with multi-species grazing. We will also involve the conference attendees in a participatory session that will explore how they can use the ideas presented to help them control invasive plants, commonly called noxious weeds.

Workshop Registration Information

Registration will be limited to 100 people on a first-come- first-serve basis. On-line registration is available and encouraged. For on-line registration please go to

Registration Fees:

Pre-registration (by November 7)
Individuals @ $25 per person
Couples @ $45 per couple
Registration (after November 7)
Individuals @ $30 per person
Couples @ $55 per couple

Motel Accommodations

The conference will take place at the Quality Inn & Suites in Clarkston, WA that is located at 700 Port Drive. A block of sleeping rooms at a discounted rate has been set-up with the Quality Inn & Suites under the name of Multi-Species Grazing. The discounted room rate is $65 plus 9% tax for 1 or 2 people per room. The reservation deadline for the discounted room rate is October 20, 2003. For reservations, call 509/758-9500 and ask for the Multi-Species Grazing room block.

Sponsors

WSU Extension with financial support from a USDA Sustainable Agriculture Research and Education Professional Development Program grant.

ADA American with Disability Act

Reasonable accommodations for individuals who qualify under the American with Disabilities Act are available upon request. If accommodation is not requested 10 days in advance, we cannot guarantee availability of accommodation on site. Please contact us at 509-335-2811, Fax 509-335-2959, Email

Contact US:

For registration information please contact us at 509-335-2811 or email to

Payments:

Make checks payable to Washington State University. VISA/MasterCard are also accepted. IRI payments - Please use the Purchase Order pay option on-line. Mailing Address: Planning for Profit–3527, WSU-CAHE Cashier, PO Box 646247, Pullman, WA 98164-6247

Weed Management Using Multi-Species Grazing Conference

November 21–22, 2003
Quality Inn & Suites, Clarkston, WA
9:00 a.m.—5:00 p.m.

Workshop Description

Come learn about environmentally friendly, solar-powered, self-propelled weed-eaters that carry their own fermentation vat and fertilizer spreading capability while producing no fossil fuel exhaust or noise pollution. They are leather covered and come in various shapes, sizes, and color combinations. Several models are available that can target specific types of problem plants.

Does this sound too good to be true? No, not really. We are just looking at an old tool in a new light. We are talking about using multi-species grazing as one of the tools in an integrated pest management program, where the pests are invasive plants. Different animal species prefer different kinds of plants. In general, cattle prefer grasses, sheep prefer forbs (i.e., weeds), and goats prefer browse (i.e., woody plants). Use of this tool provides the opportunity to have grazing animals utilize plants that are expensive to control by other means. The animals use these plants as feed sources, thereby turning a liability into an asset. By describing what you want the future plant community to look like, you can plan a grazing program that will complement other tools used in the process of achieving it.

This conference is the culmination of the two-year project, "Noxious Weed Control Through Multi-Species Grazing," funded by the USDA Sustainable Agriculture Research and Education/Professional Development Program. There are 30 project participants from four states that represent state and federal agencies, county weed boards, Extension, and ranchers. The first year of the project involved a series of workshops that covered the principles of holistic decision-making, planned grazing, multi-species grazing, monitoring, and low-cost cow-calf production. In the second year, these principles served as the basis for the design and implementation of on-the-ground projects, some of which are being funded by grant proposals written by the project participants.

Speakers on the conference program will talk about their own on-the-ground experiences with multi-species grazing. We will also involve the conference attendees in a participatory session that will explore how they can use the ideas presented to help control invasive plants, commonly called noxious weeds.

Workshop Registration Info

Registration will be limited to 100 people on a first-come, first-serve basis.

Online registration is available and encouraged. For online registration please go to **http://www.emmps.wsu.edu/Eservices/online.html.**

Presenters/Sponsors

WSU Cooperative Extension with financial support from a USDA Sustainable Agriculture Research and Education Professional Development Program grant.

Workshop Location
Quality Inn & Suites
700 Port Drive • Clarkston, WA 99403
509/758-9500

Motel Accommodations
A block of rooms at a discounted price has been made available at the Quality Inn & Suites under the name "Multi-Species Grazing." The discounted room rate is $65 plus 9% tax for 1 or 2 people per room. The reservation deadline for the discounted room rate is October 20, 2003. For reservations call 509/758-9500 and ask for the "Multi-Species Grazing" room block.

ADA American with Disability Act
Reasonable accommodations for individuals who qualify under the American with Disabilities Act are available upon request. If accommodation is not requested 10 days in advance, we cannot guarantee availability of accommodation on site. Please contact 509-335-2811, Fax 509-335-2959, or Email ceeps@wsu.edu.

Planning for Profit Workshop Registration Fees

Pre-registration (by November 7, 2003)		TOTAL
☐ Individual	$30	_____
☐ Couple	$50	_____
Registration (after November 7, 2003)		
☐ Individual	$40	_____
☐ Couple	$70	_____

Weed Management Registration Fees

Pre-registration (by November 7, 2003)		TOTAL
☐ Individual	$25	_____
☐ Couple	$45	_____
Registration (after November 7, 2003)		
☐ Individual	$30	_____
☐ Couple	$55	_____
TOTAL (transfer to front)		☐

For registration information please contact us at 509-335-2811 or email ceeps@wsu.edu

"Weed Management Using Multi-Species Grazing" Conference

November 21-22, 2003

Program

Friday, November 21

7:30-8:30 a.m.: **On-site registration**

8:30-8:45 a.m.

Introduction: "Why Are We Here?" – Donald D. Nelson, WSU Department of Animal Sciences, Pullman, WA

8:45-10:15 a.m.

"Goats: Graze Other People's Unwanted Plants and Make a Profit"– An Peischel, Goats Unlimited, Extension Goat Specialist, Tennessee State University, Nashville, TN

10:15-10:30 a.m.: **Break**

10:30 -11:15 a.m.

"Goats and Sheep as a Tool for Vegetation Management" – Craig Madsen, Healing Hooves, Edwall, WA

11:15-11:45 a.m.

"Planned Grazing to Enhance Range for Big Game and Livestock" – Doug Warnock, Solar$ Associates, Ellensburg, WA

11:45 a.m.-12:00 p.m.

Question and Answer session

Panel composed of An Peischel, Craig Madsen & Doug Warnock

12:00-1:15 p.m.: **Lunch on your own**

1:15-2:15 p.m.

"Dallesport Vegetation Enhancement Project Using Sheep and Goats – A Cooperative Effort" – Marty Hudson, Klickitat County Weed Board, Goldendale, WA

2:15-2:45 p.m.

"BEHAVE Project: Applying Behavioral Principles in Managing Ecosystems" – Demetrio Vasquez, Heart Surgeon and South American Rancher, San Diego, CA

2:45-3:00 p.m.: **Break**

3:00-3:45 p.m.

"Weed Management Areas and Multi-Species Grazing in Idaho" – Carl Crabtree, Idaho County Weed Board, Grangeville, ID

3:45-4:30 p.m.

"Why Does a Cow-Calf Producer Become a Goat Herder?"– Ray Holes, Lazy H Livestock, White Bird, ID

4:30-5:00 p.m.

Question and Answer session

Panel composed of Marty Hudson, Demetrio Vasquez, Carl Crabtree and Ray Holes

5:00 p.m.: **Adjourn.** Evening open. The only scheduled activity will be a no-host get-together for the alumni of the Kellogg Holistic Management Project.

Saturday, November 22

8:30-9:15 a.m.

"California Browsing Academy" – Roger Ingram, University of California Cooperative Extension, Auburn, CA

9:15-10:00 a.m.

"New SARE/Research & Education project: Implementing Weed Control Through Multi-Species Grazing"– Andrea Mann, Coordinator of Big Bend RC&D, Ephrata, WA & Michael Carpinelli, USDA/ARS, Burns, OR

10:00-10:15 a.m.: **Break**

10:15-11:00 a.m.

"The Thundering Hooves Experience" – Joel Huesby, Thundering Hooves, Touchet, WA

11:00-11:15 a.m.

Question and Answer session

Panel composed of Roger Ingram, Andrea Mann, Michael Carpinelli and Joel Huesby

11:15 a.m.-12:00 pm.

Preview of rough-cut of SARE/PDP Noxious Weed Control Through Multi-Species Grazing project video – Darrell Kilgore, WSU/CAHE Information Department, Pullman, WA

12:00-1:15 p.m.: **Lunch on your own**

1:15-5:00 p.m.

" Where Do We Go From Here?"

A participatory session involving all attendees to explore how the ideas presented might be put to work to help control invasive plants on their property at a profit.

5:00-5:15 p.m.

Concluding remarks – Donald D. Nelson

Attachment E

Planning for Profit Workshop

November 20, 2003
Quality Inn & Suites, Clarkston, WA
9:00 a.m.—5:00 p.m.

Register online
http://www.regonline.com/?10424

Workshop Description

Are you having difficulty making ends meet? Are your expenses rising faster than your income? This workshop will provide an overview of a planning process that will help you prioritize your expenditures and ensure that they are helping you achieve your long-term goals. Anyone interested in making a profit will benefit from this workshop.

Learn a new perspective on making decisions and a different set of guidelines for prioritizing costs, which will help you combat rising production expenses and low commodity prices. This workshop will show you how to gain control of your current financial situation and develop a plan that is profitable. The process you learn is applicable to any business or endeavor.

You will learn:

- How to take control of your finances and plan for profit.
- Why you need to focus on profit, not production.
- Creative ways to cut expenses and prioritize spending.
- How to monitor your expenses monthly to ensure a profit.
- How to reduce your debt to zero within a short time period.

It will help you:

- Be more aware of the importance of managing an operation that is socially, ecologically, and economically responsible.
- Be able to produce a "true" profit, which involves an increase in biodiversity.
- Be more aware of "new wealth" and be able to generate it from the same land base.
- Be able to plan a profit and produce it.

Workshop Registration Info

Registration will be limited to 30 people on a first-come, first-serve basis.

Online registration is available and encouraged. For online registration please go to **http://www.emmps.wsu.edu/Eservices/online.html**.

Presenters/Sponsors

This workshop is being presented by Doug Warnock and Craig Madsen of Solar$ Associates, Ellensburg. It is sponsored by WSU Cooperative Extension with financial support from a USDA Sustainable Agriculture and Education Professional Development Program grant.

The *Planning for Profit Workshop* (11/20/03) will take place the day preceding the *Weed Management Using Multi-Species Grazing Conference* (11/21–22/03) at the same location—the Quality Inn & Suites in Clarkston, WA.

You may want to consider attending both of these educational events!

Registration for: ☐ **Planning for Profit** ☐ **Weed Managemanet** ☐ **Both**

Clip out and return with payment

Email_____

Name_____ Company_____

Address_____

City_____ State_____ Zip_____

Phone_____ Fax_____

Accompanying Person_____

Payments

Make checks payable to **Washington State University**. VISA/MasterCard are also accepted. IRI payments: Please use the Purchase Order pay option online. You may FAX your registration to 509-335-2959 or mail completed form

Total Enclosed $_____

☐ VISA ☐ MasterCard ☐ Check

Number_____

Exp. Date_____

Name on card

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Attachment F
Workshop Series, 2002

Topic	Date	Location	Instructors
1. Holistic Decision Making	Feb. 26-28	Clarkston WA	Doug Warnock Sandy Matheson
2. Land EKG			
A	May 13-15	Cheney WA	Charley Orchard
B	May 16-18		
3. Biological Planning/ Planned Grazing/ Multi-Species Grazing	Aug. 13-15	Spokane WA	Maurice Robinette Craig Madsen An Peischel
4. Low Cost Cow-Calf Production Body Condition Scoring	Nov. 12-15	Pullman WA	Dick Diven Jay Jenkins Don Nelson

Attachment G

List-Serve Examples

Jim & Barbara Long

From: "Jeff Nauman" <JNauman@idl.state.id.us>
To: <multispeciesgrazing@listproc.wsu.edu>
Sent: Monday, November 18, 2002 9:38 AM
Subject: Fiberglass

Hey, wasn't that another good session? I certainly appreciated the opportunity to re-take that course and gained a bunch of new knowledge that I missed the first time through, especially the Chemistry!

Does anyone know of a source for waste product fiberglass rods? I'm looking for lengths up to 6' long, 3/4" to 4" in diameter. In reading Greg Judy's book No Risk Ranching, he referenced them as a cheap source of sturdy, insulated fencing material, but I haven't found a source. Any feedback, leads, etc. would be appreciated!

Thanks again for all your participation in this project. Keep in touch (or as Kit Pharo would say: Call when you find work!),
regards,
jcn

Jeff C. Nauman
Lands Coordinator
Idaho Department of Lands
10230 Highway 12
Orofino, Idaho 83544
208-476-4587
jnauman@idl.state.id.us

Jim & Barbara Long

From: "Matt Voile" <mvoile@co.umatilla.or.us>
To: <multispeciesgrazing@listproc.wsu.edu>
Sent: Tuesday, July 23, 2002 11:32 AM
Subject: Re: Weed web site available to help land managers

Don, and "Bunch"

Just a short FYI, yesterday I was contacted by a fella name of Frank Rodriquez, from Nyssa, Oregon. He has 500 goats that he is wanting to find weeding work for. He is charging $ 42.50-45.00 per acre, that cost is the herding dogs, herder, and all supplies he requires included. Said that he normally applies 50-60 goats per acre, and he figures that it will keep them about 12-15 days, per acre to get it nicely weeded. So, if anyone has work for him, he would love to hear from us, he also stated that the more goats he can put on one spot, the less cost??. His phone is (541) 212-9048.
Thanks, see ya in a couple weeks.
Matt Voile
----- Original Message -----
From: "Don Nelson" <nelsond@wsu.edu>
To: "Multi-Species Grazing Listserve (E-mail)"
<multispeciesgrazing@listproc.wsu.edu>
Sent: Wednesday, July 10, 2002 6:27 PM
Subject: FW: Weed web site available to help land managers

>
>
> fyi
>
> -----Original Message-----
> From: MSU Ag & Extension News [mailto:carolf@montana.edu]
> Sent: Friday, July 05, 2002 8:19 AM
> To: agandextnnonmedia@listserv.montana.edu;
> producers@listserv.montana.edu
> Subject: Weed web site available to help land managers
>
>
> http://www.montana.edu/commserv/csnews/nwview.php?article=406
>
> Weed web site available to help land managers
> 7/05/2002 Contact: Kim Goodwin (406) 994-6749 kgoodwin@montana.edu
> BOZEMAN -- A new organization of information on Montana State University's
> World Wide Web should help land managers with their noxious weeds.
>
> "Noxious weeds displace native vegetation, reducing biodiversity,
> threatening rare species, altering nutrient and water systems, and
> decreasing both wildlife and livestock forage," says Kim Goodwin, MSU weed
> management project specialist.

>
> The web site, http://weeds.montana.edu , includes information on weeds in
> crops and on rangeland, weed physiology and ecology, and various weed
> identification tools. Meghan Trainor, an MSU graduate student in Land
> Resources and Environmental Sciences, developed the web site.
>
> "Since noxious weeds by definition are difficult to control, people need
to
> protect non-infested areas by early intervention, when weed control is
> easiest and least expensive," says Goodwin. "Hopefully, this weed site
will
> help."
>
> In addition, the MSU Extension Service has many low-cost and no-cost
> publications available. Extension publications are searchable on-line at:
> http://www.montana.edu/publications/. Others are available to order
through
> the Extension Publications Catalog. A free copy of the catalog can be
> ordered from your local Extension office or by writing or calling MSU
> Extension Publications,P.O. Box 172040, Bozeman, MT 59717 (406) 994-3273,
> or by sending an email to orderpubs@montana.edu.
>
> MSU Ag and Extension News
> News from Carol Flaherty, Suzi Taylor, Marla Goodman and Scott Freutel
> 406 994-5136 or 994-2721
>
> You can browse or search a web archive of news stories by going to:
> http://www.montana.edu/commserv/csnews/nwarchive.php
>
> Extension publications are searchable on-line at:
> http://www.montana.edu/publications/
>
>
>

Jim & Barbara Long

From: "Andrea Mann" <andrea.mann@wa.usda.gov>
To: <multispeciesgrazing@listproc.wsu.edu>
Sent: Monday, May 06, 2002 12:21 PM
Subject: Re: WSARE Competitive Grants

Who are the reps for Franklin and Benton Co. and their contact address, phone, email? Thanks for the info! Andrea

Kevin Hupp wrote:

> Andrea,
>
> As a coordinator for the noxious weed control board here in Lincoln County
> part of Sprague Lake falls under my jurisdiction. I would be happy to tag
> on to your project if it is in Lincoln County.
>
> KEVIN L. HUPP, COORDINATOR
> LINCOLN COUNTY NOXIOUS
> WEED CONTROL BOARD
> PO BOX 241; 405 Ross St.
> DAVENPORT, WA. 99122
> (509) 725-3646
> FAX: (509) 725-1332
> <http://noxiousweeds.com/default.htm>
>
> > ---------
> > From: Andrea Mann[SMTP:andrea.mann@wa.usda.gov]
> > Reply To: multispeciesgrazing@listproc.wsu.edu
> > Sent: Monday, May 06, 2002 8:40 AM
> > To: multispeciesgrazing@listproc.wsu.edu
> > Subject: WSARE Competitive Grants
> >
> > Hello everyone!! I'm working on a pre-proposal to fund a multi-species
> > grazing project as part of the PDP group assignment. The project area
> > selected is a ranch near Richland, Washington which is participating in
> > the Wetland Reserve Program. The ranch is currently grazed by cattle
> > and is being managed as and wetland wildlife area. The area is covered
> > with Russian olive in various ages, noxious weeds including Russian
> > knapweed, yellow starthistle, scotch thistle, purple loosestrife,
> > perennial pepperweed, puncture vine and other weeds including foxtail
> > barley, tumble mustard, pennycress, pigweed, etc.
> >
> > The plan thus far includes completing a weed inventory, determine
> > grazing periods, establish baseline monitoring , hire a band of sheep
> > and goats to implement the plan, implement monitoring plan, publish
> > findings, teach others what we learned.
> >
> > If you would be interested in participating in this effort, please let

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> > me know before the Cheney session to what extent you could assist. We
> > are asked to include a signature page for participants. I'll prepare a
> > signature page and have you sign in Cheney May 16-18 or via mail. We
> > also have been asked to provide a budget projection. Let me know if you
> > would require mileage and travel expenses and how much.
> >
> > Any other suggestions or ideas will be gladly accepted. I have another
> > potential project area in the Sprague Lake area west of Spokane. The
> > rancher already has a leased band of sheep on his land for brush
> > control. Let me know if you are interested.
> >
> > The deadline for pre-proposals is June 10.
> >
> > Thanks for the input and assistance. I'll see some of you very soon!
> > Andrea
> >

Jim & Barbara Long

From: "Peter Donovan" <pdonovan@orednet.org>
To: <multispeciesgrazing@listproc.wsu.edu>
Sent: Sunday, March 03, 2002 4:45 PM
Subject: great to meet everyone

Congratulations to Doug, Sandra, and Don for a great start to our project. I enjoyed meeting everyone and regretted having to leave early.

Some PS's:

1. For a rundown on what Ray Holes et al. are doing in White Bird in terms of restoring perennial grass cover, see

http://managingwholes.com/news/issue.htm

2. For some good information on goats see

http://www2.luresext.edu/goats/library/goat_library.htm

3. Don mentioned that Canada has 20 percent of the world's fresh water and only 32 million people---and they're PLAYING HOCKEY on it!

best to all

Peter

Find out what others are learning from conscious attempts at managing wholes, rather than just positions, agendas, species, problems, or parts: http://managingwholes.com

Jim & Barbara Long

From: "Carpinelli, Michael" <michael.carpinelli@oregonstate.edu>
To: <multispeciesgrazing@listproc.wsu.edu>; <implementingweedcontrol@listproc.wsu.edu>
Sent: Tuesday, November 25, 2003 11:44 AM
Subject: Goat handbook

Hi All

I thought this website would interest most of you...

Livestock for Landscapes is a resource for information on management techniques, training opportunities, and suggestions for how communities and livestock producers can work together to create sustainable, economically viable communities and landscapes.
http://www.livestockforlandscapes.com/

Michael

Michael Carpinelli, Rangeland Scientist
USDA-ARS
Eastern Oregon Agricultural Research Center
67826-A Hwy 205
Burns, OR 97720
E-mail: michael.carpinelli@oregonstate.edu
<http://www.orst.edu/dept/EOARC/abouthome/abouteoarc.html>
FAX 541-573-3042
phone (work) 541-573-8911
phone (home) 541-573-3559

-----Original Message-----
From: owner-multispeciesgrazing@listproc.wsu.edu
[mailto:owner-multispeciesgrazing@listproc.wsu.edu]On Behalf Of Don Nelson
Sent: Tuesday, November 25, 2003 10:52 AM
To: 'multispeciesgrazing@listproc.wsu.edu'
Subject: RE: address

Maurice:
The BEHAVE website address is http://www.behave.net

-----Original Message-----
From: maurice robinette [mailto:mlr@icehouse.net]
Sent: Sunday, November 23, 2003 5:53 PM
To: multispecies
Subject: address

I misplaced the web page address of the group dimitri discussed.

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Jim & Barbara Long

From: "Carpinelli, Michael" <michael.carpinelli@oregonstate.edu>
To: <implementingweedcontrol@listproc.wsu.edu>; <multispeciesgrazing@listproc.wsu.edu>
Sent: Tuesday, December 02, 2003 5:15 PM
Attach: Winter-Spring 2003_2004.doc
Subject: Meeting in Everett, WA

Some of you may be interested in hearing Geoff Reed--for more details, see attachment.
Michael
****

The Society for Ecological Restoration Northwest Chapter,
Along with Snohomish County Surface Water Management
Presents...

Winter/Spring 2003/2004
EARLY MORNING SEMINAR SERIES
Everett Area
January 8, 2004
Speaker: Geoff Reed, Senior Project Specialist, King Conservation District
Topic: Utilizing Goats and Sheep for Vegetation Management in the Urban Environment

Geoff Reed has 12 years' experience as Senior Project Specialist and District Co-Coordinator for the King Conservation District. He will share with us his experiences from 3 pilot projects, in the Seattle area, using "flash grazing," with 100 + goats and sheep. Geoff will highlight what noxious weeds to target and when, the drawbacks, costs, suitable sites, successes and challenges when incorporating goats as part of the weed management tool box.