Report of a meeting

Common concerns and shared interests:

Research potentials in Oregon for the Great Basin range and forests

Convened by the
Oregon Agricultural Experiment Station

Malheur Field Station

April 23 and 24, 1990

Contents

Appendixes: Transcripts of notes

Description and purpose of the meeting

In early 1990, members of the advisory committee of the Eastern Oregon Agricultural Research Center told Station Superintendent Marty Vavra that, in planning its research, the Station would benefit from involving individuals with a wider array of viewpoints. Vavra discussed this with Thayne Dutson, director of the Oregon Agricultural Experiment Station, who asked Vavra to convene a short but intensive meeting of individuals representing enterprises and organizations with a stake in the station's research on cattle, rangelands, management, and the ecology of the Great Basin.

Vavra invited representatives of many groups to take part in a two-day meeting at the Malheur Field Station*, Monday and Tuesday, April 23 and 24, 1990. The purpose of the meeting was to identify research needs and interests of common concern and importance to the individuals and organizations represented. In this setting, 33 individuals gathered at noon Monday, April 23, and described the purposes, goals, and research interests of their organizations. Discussion after dinner explored varying points of view about natural resources, public policy, and issues. Resuming the next morning, discussions led to the development of a rich list of research possibilities as well as some decisions about research and other actions that might be taken.

Organizations represented at the meeting included:

Advisory Committee, OSU Eastern Oregon Agricultural Research Center
Agricultural Research Service, U.S. Department of Agriculture
Izaak Walton League
Malheur Field Station
National Wildlife Federation
Oregon Cattlemen's Association
Oregon Environmental Council
Oregon Native Plant Society
Oregon Natural Desert Association
Oregon Small Woodlands Association
Oregon Trout
OSU Agricultural Communications Department
OSU Agricultural Experiment Station
OSU Department of Animal Science
OSU Department of Fisheries and Wildlife
OSU Department of Rangeland Resources
OSU Eastern Oregon Agricultural Research Center
OSU Extension Service
Pacific Northwest Research Station, U.S. Forest Service
State of Oregon Department of Fish and Wildlife

The Wildlife Society
Trout Unlimited

For a list of names of those attending the meeting, see the next section.

Director Dutson invited me to take part in the meeting as facilitator and recorder. Preparing this report also has been part of my contribution. In the report you will find summaries I have prepared from the notes that Dan Edge and I took. You will also find (in the appendixes) transcripts of the notes as they appeared on the flip chart pages we posted on the walls of the Field Station's dining hall. In preparing the summaries, I have attempted to portray individual speakers' comments as accurately as possible. If I have erred in reporting their remarks, the responsibility is mine, not that of the participants. To help assure accuracy, however, I have asked others who attended the meeting to review early drafts of this report.

—Gwil Evans
Director and Professor
Department of Agricultural Communications
Oregon State University

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*The Malheur Field Station is a regional education center whose primary mission is to provide educational and research opportunities in the northern Great Basin and inter-mountain West. It is located on the Malheur National Wildlife Refuge, about 32 miles south of Burns, Oregon. Its programs are directed by a consortium of 22 Pacific Northwest colleges and are supported broadly by a variety of organizations that have common interests.

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Monday afternoon, April 23, 1990

Opening statements

[Each person attending the meeting was asked to identify his or her affiliation and to describe the purpose, goals, and research interests of that organization.]

William G. Chace, Jr., Area Director, Pacific West Area, Agricultural Research Service, U.S. Department of Agriculture, Albany, CA

The objective of ARS research is to increase agricultural profitability while assuring balanced use of resources. ARS research areas include water, ecology, soil, land use, systems, and weed and brush control.

Thayne Dutson, Director, Oregon Agricultural Experiment Station, Corvallis

The Agricultural Experiment Station is the statewide research enterprise of the OSU College of Agricultural Sciences. Its mission is to conduct research that enhances the state's agricultural industry while protecting and conserving the natural resource base. If the Agricultural Experiment Station is successful, it will enhance the state's economy. At this meeting, the Station is interested in providing a platform to find common interests and to build coalitions.

Eldon Smith, Trout Unlimited

Water quality is the paramount concern of Trout Unlimited. There should be ample quantities of clean, cool water to enhance the fishery resources. To achieve that, the organization is interested in protecting the rangeland and streams that flow through it, and at minimizing the effects of logging on streams and of mining (especially cyanide bleach).

Art Tiedemann, Pacific Northwest Research Station, U.S. Forest Service

The Station has a long history of research related to rangelands and forests. Among noteworthy studies related to this meeting are research projects on spruce budworm, wildlife on the range, agro-forestry transitory range, elk-cattle interactions, and studies of non-game wildlife. The Station doesn't now do much research on the semi-arid range, however. The Station is being reorganized so that it will be more competitive in undertaking large-scale programs. The reorganization contemplates two major divisions: one on research development

and applications, and another that conducts research. Among the research that might be undertaken as a result of this meeting, consider (1) identifying the critical issues in water quality; and (2) applying what is known through research for creating biodiversity (moving away from monocultural stands of crested wheatgrass).

Russ Pengelly, Desert Trail Association

The Association is dedicated to teaching people about the desert. It accomplishes that by encouraging development and use of trails on the desert. The Association was established some 25 years ago and has more than 600 members. Its philosophy is one of use and protection of the natural resources, but it is not an advocacy organization. How can we use research to synthesize people's interests and energies?

Kathe Myron, Oregon Trout

Oregon Trout is not an angling group, but an advocacy group that "speaks for the fish" in favor of wild fish and suitable habitat for them. It is interested in restoring the productivity of natural runs and assuring a healthy habitat now and in the future. Oregon Trout seeks to promote communication among agencies that influence fish and fish habitat, to inform people of the value of the fish resource, and to promote wise management of fisheries. As a research project, Oregon Trout proposes a study of the administrative effectiveness of the management agencies that affect fish and fisheries. Such a review should be completed within one year and the results of the study should be used to assess the budget needs of the agencies. For example, it is clear some agencies are not adequately funded to do the jobs assigned them. This review would call attention to such deficiencies and needs. Another research proposal is a pilot project in which grazing fees would be adjusted according to the quality of land management carried out by the permit holder. A third research possibility would identify the effect on aquatic conditions of livestock, using a test area and a control area for comparison.

Mitch Willis, The Wildlife Society

The Wildlife Society promotes sound stewardship of natural resources by preventing degradation of the environment and encouraging high professional standards in resource management. It proposes studies of fire ecology with emphasis on the effects of fire on biotic composition, both long- and short-term. With respect to water, the Society proposes study of the effects of water hole development on playas.

Hank Kuhl, Oregon Small Woodlands Association

The Association is interested in good resource stewardship and good management. Water quality is of particular importance. Research regarding riparian zones should consider non-palatable species of grass and trees as well as genetics of trees that are porcupine resistant. Another area of research is that of planning prescribed burns.

Roy Elicker, National Wildlife Federation

The big issue is that of grazing on public lands, fueled by the fact that so much public land is in such bad shape. It is important to recognize that improving the range doesn't mean improving it for cattle. The Federation and others look at Land Grant universities as suspect because their work is perceived as directed by the livestock industry. Research to date has not given the "big picture" of how the range really works. For many people, public land grazing equates to overgrazing. But we are beginning to hear from the cattle industry that there's room for some flexibility. Flexibility will be necessary in the future as public policy focuses on the true costs of public land grazing. It will be important to examine and practice techniques for land restoration. For promoting biodiversity. This will become an even greater issue as more people look to the desert for recreation—it becomes a sociological issue. It is up to the University to look ahead and to get ahead of the change that is inevitable.

Doc Hatfield, Izaak Walton League

Without doubt, there will be more people looking to the land we're discussing today. They will call for more balanced use of the range, but they will support use of public lands for grazing. Equally important to the health of the public lands is to keep the private range in ranching use. That helps to assure proper stewardship of the adjacent public lands. As a research project, we should have a massive natural burn in the juniper zone—an unmanaged fire—and then compare the outcomes of the burned area with a similar control area in which there has been no recent fire.

Fred Otley, Oregon Cattlemen's Association

The Cattlemen's Association is interested in working with others to develop coalitions. Among the several possibilities for research projects, these seem important: Study of the biological needs of the land, and the needs of the people who use the land; hydrology and watershed management (fundamental to the other elements of the ecosystem); nutrient cycling; ecological succession; and fire.

Larry Bright, Oregon Department of Fish and Wildlife

The Department wants to be part of research planning of this sort, and is especially interested in helping assure that resource managers have research-based information to help them do their jobs. In fact, there is a great need to share information on what already is known as well as what research is currently underway. A caution: Don't use research as a convenient way of putting off decisions that should be made today.

Lucile Housley, Malheur Field Station, and Native Plant Society

The goal of the Malheur Field Station is to help people put together the pieces of the puzzle that is the Great Basin. We also are interested in raising the consciousness about botany among management agency officials.

The Native Plant Society aims to increase people's knowledge and appreciation of native plants. We "speak for the plants."

Alice Elshoff, Oregon Natural Desert Association

The Association is interested in natural landscapes and preserving large, unmanaged bioregions. It seeks means to get public lands back to their maximum biodiversity. There is interest in how much subsidy is provided to large, corporate ranching and a concern for the welfare of the smaller, family operators who must be helped to cope with the inevitable changes that may be expected on the public rangelands. Research would be appropriate on facilitating change and minimizing negative effects on family-owned ranches. Ecology should be the key and should provide a blueprint for comprehensive action. (Observation: We don't have a common language for judging the quality of a desert or range.)

Dan Edge, Oregon State University Department of Fisheries and Wildlife

This department is one of the largest at Oregon State University. Much of its previous research has concentrated *west* of the Cascades. Research should focus on community-level response (populations). It is important to make sure the scale of research is large enough. There is opportunity to gain funding for work with non-game species. Suggested area of research: A survey of attitudes and knowledge about livestock and range ecology.

Bill Krueger, head, Oregon State University Department of Rangeland Resources and acting program leader, OSU Extension Service agricultural programs

The Department of Rangeland Resources conducts varied research, teaching, and Extension Service programs. Research programs of the department are described in a publication (distributed at this meeting). Additional copies are available from the department.

Dave Chamberlain, Society for Range Management

The Society is oriented to the study and promotion of the art and science of range management. It recognizes that the range is renewable and manageable and that human influence there is inevitable. Suggests research work on glossaries of terms to help establish common language for those who share an interest in the range.

Tuesday morning, April 23, 1990

Suggestions for research

[Each person was asked to respond to the following question:

> From what you have heard at this meeting, what do you see as the one or two broad areas that are emerging for research that are of common interest?

The original notes for this section are in the Appendix as *Tuesday morning*.]

Natural systems

Riparian zones (meadows, streams) with special emphasis on nutrient processing and the hydrologic cycle.

Water and nutrient cycling in the riparian zone.

What are the effects of people on the land?

Restoring the ecosystem of the range will require historical reconstruction. That means we will need information on what the range was like and enough information to make wise decisions about where we should be going.

Conduct a social, economic, and ecological assessment of the range ecosystem, with and without non-native species.

Baseline data are needed to address the question of whether the range truly can support grazing. Is there excess forage—beyond what is needed by wildlife—to support grazing of domestic livestock?

We need information about the hydrologic cycle, but studies should be conducted on entire watersheds and should investigate nutrient cycling.

Studies of watersheds should incorporate an historical perspective.

Use an "expert systems" approach to studying the question of whether grazing is good or bad for the range. Draw together existing research results and identify additional research that is needed.

Recognize that it is important to conduct our research on the same scale as whatever we want to manage. For example, study the use of fire or the management of a watershed on such a scale.

Water is the heart of the system. In that context, study the hydrologic cycle, succession, and fire.

Study the effects of plants on ecosystem processes and evaluate the consequences that dominant herbivores have had in the Great Basin.

Study fire on a macro scale. What has be the historical role of fire? What is the response of the plant community to fire? Then use a team approach to implementing what we have learned.

Resource economics

Concerning the use and management of our natural resources, how can we support human populations and still maintain the integrity of biological systems?

What are the economic realities for counties in which large proportions of the land is under public ownership?

What will be the economics for rural communities when changes are made that affect the major industries of the area?

Obtain economic and social data: What are the real costs of changes in the use of the range? What are the consequences for families and communities? To what extent does grazing on public lands subsidize big corporations?

Study carrying capacity: What can the desert steppe support in the way of wildlife, people, and domestic livestock?

Management

Can herbivores be used to manage for specific objectives and, if so, how?

How can fire be used as a tool to maintain a plant community?

Fire: how can we gain acceptance of controlled burns? And how do we manage them?

What is the role of prescribed burns? How can burns be managed?

How can fire be used to maintain or reestablish biodiversity? What are the effects of fire for managing biodiversity? What is the effect of fire on nutrient composition?

Conduct a comparative demonstration. Allow a fire to burn a large area. Then conduct post-burning research on areas that are managed and similar areas that are unmanaged.

We should draw together our existing knowledge of fire and make further research efforts in that area.

Stimulate diverse systems, then—recognizing the importance of telling people what we have learned—conduct tours and otherwise let others understand what is known.

What are the consequences of coyote control (or lack of it) for wildlife.

Comparison studies involving exclosures.

What are the consequences of winter grazing for the soil and for plants?

We need a reliable inventory of stream condition. Stream-by-stream, how many miles of stream are in good condition? Where are we now? What can each stream support?

What non-palatable plant species are there? How might they be used to influence the behavior of herbivores in riparian zones?

Can we restore a watershed to native species? What are the biological, social, and economic relationships and consequences?

Conduct a demonstration of how to manage a watershed to achieve a prescribed environment.

Scientific method, research planning, and nomenclature

It is easy to talk about *biodiversity*, but it means different things to different people. What's needed is some leadership in developing an "index of biodiversity" that can be commonly understood and commonly used.

Promote communication by developing a common glossary of terms.

Recognize that water quality can be described and compared using standard and common measures: temperature, sediment, and fecal coliform. Adopt these as standard measures and as part of a common language.

There should be more joint research planning among agencies, interested groups (along the lines of this meeting).

Recognize that we're talking about two ecosystems here: the forest and the high desert.

In research planning, we should first identify where we want to be (with information, management schemes, etc.) then the research will flow from that.

Rare opportunities

Study the change in the plant community in the recession of Malheur Lake.

Conclusions

Where do we go from here?

Based on discussions at the meeting, Superintendent Marty Vavra proposed initiation of a research project that would entail an in-depth appraisal of the Bear Creek watershed on lands administered by the Prineville District of the Bureau of Land Management (BLM). Start-up funds for the project would be provided by the Oregon Agricultural Experiment Station and the USDA Agricultural Research Service. The Bear Creek watershed is suited to such a study because it has a history of documented grazing treatments as well as total exclusion applied to various stretches of the stream. Initiation of the project depends on BLM approval. A Core Group will be designated to develop an initial proposal during 1990. It will include scientists and representatives of the BLM, the cattle industry, and environmental organizations. All participants in this April 1990 meeting at the Malheur Field Station will be invited to reconvene in late 1990 to review the proposal. Such a meeting is planned tentatively at the Bear Creek site in September 1990.

Participants agreed they would like to receive a summary of the meeting. Director Dutson and Gwil Evans said they would prepare and distribute one.

Appendixes

Appendixes: Transcripts of notes

The following sections are unedited transcripts of notes taken on flip chart pages during the meeting and posted in the meeting room. They were the basis for the preceding summary. —GE

Notes: Monday afternoon

Research Priorities
- -short-term
- -long-term
- -at least *one* specific project

ARS
- -increase profitability
- -balanced use of resources
  - -water
  - -ecology
  - -soil
  - -land uses
  - -systems
  - -weed & brush

AES
- -agriculture and protect/conserve natural resource base
- -state's economy

Look for common interests
Build coalition

Trout Unlimited -- Eldon Smith

Water
- -clean, cool water
- -quality

Protect rangeland and streams
Effects of logging on streams
Mining -- cyanide bleach

PNW Research Station -- Art Tiedemann
- -spruce budworm
- -range -- wildlife
- -agro-forestry transitory range
- -elk-cattle interactions
- -non-game wildlife research

Station doesn't now do much research on semi-arid range

Reorganization of station:
- -research development and applications

-research
-to be more competitive for large-scale programs

Identify the critical issues in water quality?

Biodiversity: monocultural stands of crested wheatgrass
-apply technology for creating biodiversity

Desert Trail Association -- Russ Pengelly
-25 year history/600+ members
-dedicated to teaching people about the desert
-philosophy: use and protection
-not an advocacy organization

How can we synthesize people's interests/energies?

Oregon Trout -- Kathe Myron
-Advocacy for wild fish & habitat
-restoring productivity
-healthy habitat now-future
-not an angling group
-speak "for the fish"

Promote communication among agencies

Inform people about the value of the resource

Promote wise management
-healthy hatchery system

Administer effectiveness of the management agencies...within one year
-assess budget needs

Pilot program: -adj. grazing fees -- related to quality of land management
-driven by incentive

Determining aquatic conditions
-derived from livestock use
-test area/control area
-look at cumulative effects

Wildlife Society -- Mitch Willis
-sound stewardship
-prevent degradation
-high professional standards
-fire ecology -- total biotic composition -- short/long-term

-water development -- effect water hole develop in plans

Small Woodland Association
-stewardship and good management
-water quality
-non-palatable species of grass, trees
-planning prescribed burns
-riparian management
-genetics of trees: for porcupine resistance

National Wildlife Federation -- Roy Elicker
-public land grazing -- the big issue
-fuel: so much public land is in such bad shape
-range improvement doesn't necessarily mean "cattle improvement"
-look at land grant universities as suspect because their work is perceived as
directed by the livestock industry
-research...has not given "big picture" of how the range works
-public land grazing -- viewed as overgrazing
-flexibility heard more from the industry -- will be necessary in the future
-there's opportunity for OSU to take leadership -- how to use land more flexibly
-what are true costs of public land grazing?
-land restoration -- techniques
-biodiversity
-sociological issues -- ESP as more people look to desert for recreation

-University -- get ahead of change that is inevitable...

Izaak Walton League -- Doc Hatfield
-there will be more people looking to the lands
-more balanced use of range
-also support use of public lands for grazing
-keep private range in ranching uses
-massive natural burn in the juniper zone -- don't try to manage the fire...then compare outcomes/demo area

Oregon Cattlemen's Association -- Fred Otley
-want to work with others, develop coalitions
-biological needs of land and people who use the land
-hydrology and watershed management
-seen as fundamental other elements of ecosystem
-nutrient cycling
-ecological succession
-fire

Oregon Department of Fisheries and Wildlife -- Larry Bright
-to provide managers with research information
-there's a need to share information on what we already know and what research is underway
-research-sometimes a way of putting off decisions
-department--be a part of research planning

Lucile Housley -- Malheur Field Station and Native Plant Society
-increase knowledge of native plants
-we "speak for plants"
-help put pieces of the puzzle (about Great Basin) together
-raise consciousness in agencies about botany

Oregon Natural Desert Association -- Alice Elshoff
-natural landscapes
-preserving large bioregions--unmanaged

-how get public lands back to maximum biodiversity
-corporate ranching--subsidy
-helping family ranges weather the change that's coming
-research to facilitate change and minimize negative effects on family ranch
-blueprint for comprehensive action
-feasibility
-ecology of land should be the key in research priority-setting

Discussion: How do we judge the quality of a desert or range? Don't sub research on this for action, however!

OSU Department of Fisheries and Wildlife -- Dan Edge
-One of largest departments in College of Agricultural Sciences. Much of previous research: western Oregon.
-need management as well as research: management can *be* research
-focus on community-level response (population)
-make sure scale is large enough
-study non-game species, especially as means for achieving funding
-survey: attitudes/knowledge/livestock/range ecology

Society for Range Management -- Dave Chamberlain
-study/promotion: art and science of range management
-range: renewable, manageable, human influence is present (inevitable)
-glossaries of terms: share common language

Notes: Monday evening

Range Condition
We can't go back to where we were before. How do we deal with that?

Water Cycles—How useful as an index?
How do we define our goal?

Once goal is defined—becomes a researchable topic.

Krueger -- OSU/BLM/et al defining "native species" for Eastern Oregon. What can you do to hurry it up?

*Design a grazing program to encourage establishment of native species.
*Which native species will compete, then -- with what nutrient value?

Can we agree on research that will further our knowledge of functioning ecosystem?

What is effect of continuing withdrawals of water from streams that support fish?

Do we look at *larger* ecosystems with research? Or is such research always "too expensive"?

Recognize -- sound management important on both *private* and *public* lands. Can't make changes on public lands without also considering consequences on private land.

Tuesday's agenda

- Goals & benefits from this meeting (Dutson)

- Once around the room: Everyone comments on two questions:
    - How do you feel about yesterday's discussion?
        - -ideas?
        - -issues?
        - -common interests?
    - From what you have heard...what are the one or two broad areas for research that are of common interest?

- What do we have the capability to do? (Vavra et. al.)

- What about the future? ...the continuity of our group.

Notes: Tuesday morning, research suggestions

[The following notes are transcribed from the flip charts kept during the meeting and are unedited. After the meeting, these notes served as the source from which I wrote and organized the section of this report entitled, *Suggestions for research.*
--Gwil Evans]

Nutrient processing
Hydrologic cycle
Riparian -- meadow -- stream

Resource use -- how to support human population and still maintain integrity of biological system?

Use of herbivores to manage for specific objective

Use of prescribed fire as tool to maintain plant community

Demonstration work: cattle in plant management

[Biodiversity -- effort underway]
[What we know about juniper, etc.]
--expert systems
Water: reactivate -- nutrient cycling in riparian zone

Controlled burn -- gaining acceptance, management of burns

Coyote control rel. wildlife, birds

Fenceline comparisons/exclosures

Counties with large proportion of public lands -- financial aspects

Effects of people...on land

Economic impact on communities when changes are made that affect major industries.

Range ecosystem restoration
-historical reconstruction
-where been -- where going

Biodiversity index
-develop
-give meaning

Assess range ecosystem with and without non-native species.
-Social/economic/ecological

Expand winter grazing research
-soil/plant consequences

Baseline data
-Establish that there really is a buffer to support grazing, is there excess forage

Economic & social data
-real costs, potential consequence for families, communities (big corporations...)

How many miles of stream are in good condition now...where are we? What can it support?

Prescribed burns -- management, role

Non-palatable species

Watershed (look at entire)/hydrologic cycle

Water - watersheds
-historical perspective

Relationship of water/watershed
-nutrient cycling

Can we restore a watershed to native species -- see bio/socio/economic relationships

Watershed management -- demonstration toward prescribed environment

Common glossary
Carrying capacity
-wildlife/people/domestic livestock

Nutrient cycling
Water quality/quantity
Fire
Alternative management
Water

Indicators -- water quality

-temperature (ameliorative measures), sediment, fecal chloroform

Fire
-biodiversity
-mng. species diversity
-effect on nutrient composition

Plant community on recession of lake

Water--
-Grazing -- bad? Good for the range?
-draw together existing data and look at additional research needed
[expert system approach]

Fire
Watershed Do research on scale we want to manage
Juniper

Comparative demonstration
-post-burning
-exclosure & managed
-unmanaged

Stimulate diverse systems
-show off -- tell people what we learn
-large team approach -- fire

[water -- upland aquifers and streams] (*not proposed*)

Water
-hydrol cycle
-succession
-fire

More joint research planning

Forest & high desert
-2 ecosystems

Identify where we want to be -- demonstration area
-then research flows from that

Fire
-draw together existing knowledge
-make further research effort

Impact plant > ecosystem processes
Evaluate impact of dom. herbivores in Great Basin
Fire: macro scale
hist. role of fire
response > plant community
implementation
--Team

Notes: Tuesday morning, ideas, issues, common interests

[The following notes record participants' responses to the invitation to comment on how they felt about the previous day's discussion and what ideas, issues, and common interests emerged from that discussion. The notes are transcribed from flip charts kept during the meeting and are unedited.

--Gwil Evans]

Water quality and quantity
-hydro cycles

General ecology -- present condition to historical

Who's going to be responsible?
Who receives benefits?

Willingness to develop communication among various groups

Desire to maintain healthy plant community

Fire suppression -- fire as a tool

A lot has been said but probably more communication is needed

Juniper and hydrology

People management as much as resource management

Cattle producers add value to a raw product (forage)

Resource better today than at turn of century

Fire: manage water quality and quantity

Lack of understanding of range ecosystem -- biodiversity

Good communication & common concerns
-water quality and biodiversity
-ecosystem function

Prescribed burns

Watershed and riparian management

We all recognize there *are* problems on our rangelands

Water is a common interest

Natural systems/fire/ecology/management: common threads

Is natural really good?
Is managed better?
What should this landscape look like and how do we get there?

Aesthetic appearance of the area [but in whose eyes]

What is the human carrying capacity

Communication is important as a measure of how well we are doing

Need to improve our technology transfer

Natural conditions?
-need to clearly define what we mean and want

Basic problem is our perceptions and conceptual frameworks

Need to get out on the ground and agree on definitions

How do we bring resources (people, money) to bear on the problems.
-additional meetings?
-using existing information?

We are all victims of manifest destiny -- need to escape that mindset

All agree on some form of management

We have all come a long way in common understanding

Common conceptual framework -- we have been building this

Notes: Where do we go from here?

- Research project *(Economic and social implications)*
  - -Marty & others
    - --advisory group
    - --full group
  - -legitimize with
  - -involve others

- Report *notes* from meeting
  - -to all

- Summary of meeting
  - -Thayne/Gwil
    - --to all

Core group
- -scientist advisory
- -clientele advisory