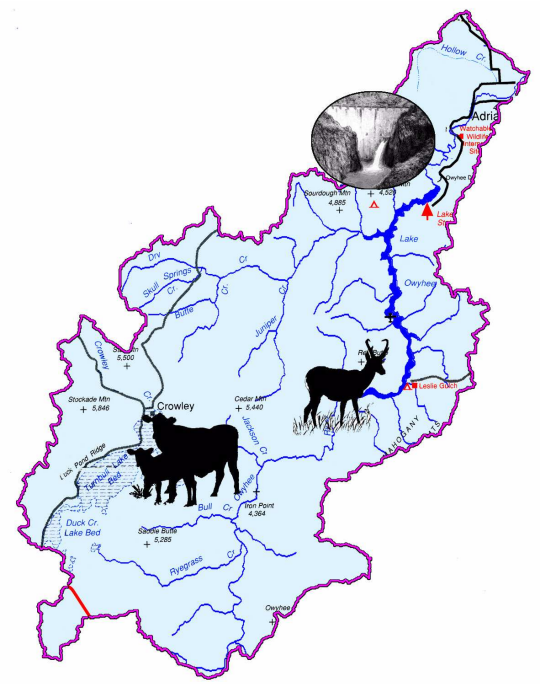

Lower Owyhee Watershed Assessment

XVI. Watershed Condition Evaluation

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To evaluate the condition of the lower Owyhee subbasin, it is necessary to look at all of the interacting factors within the ecosystem. The subbasin has changed since the first Native Americans took up residence here at least 13,000 years ago. There have been changes in climate, changes in population densities, and changes in the effects of humans on the ecosystem.

Native American inhabitants of the region modified the environment. The pre-European land use practices affected the abundance of game and promoted the propagation of economically important plant species. With the arrival of Euro-Americans and with advances in technology, the types of modifications to the environment have changed and are continuing to change. These more recent modifications can be considered both beneficial and harmful.

Ecosystems are dynamic. The ecosystems of the Owyhee subbasin have changed from what they were before the Spanish introduced horses and European diseases to the western hemisphere. They have changed from what they were at the time of Euro-American contact, and they have changed from what they were at the turn of the last century.

Some things have remained relatively constant over the last two hundred years. The lower Owyhee subbasin is still an arid to semi-arid desert with little water and less runoff. The land is geologically very young so the soils are not developed. The combination of poor or nonexistent soils with lack of water has meant that the population of the area has remained low.

The tremendous geological and erosive forces which shaped the landscape in the more distant past have been relatively inactive in the recent past. Unchanged by bulldozers and subdivisions, the natural beauty of the landscape has not been spoiled.

A. Evaluation of watershed condition

The lower Owyhee subbasin occupies a large, sparsely populated area. There is a paucity of data about many aspects of the region, both as it may have existed before Euro-American entry into the region and as it exists now. Many of the unknowns, or data gaps, have been enumerated in the other sections of this assessment.

There are some conclusions which can be made from the data which is available.

A landscape that was devoid of trees at the time of Euro-American contact now has trees growing along parts of the Owyhee River.

Large game, extremely scarce at the time of Euro-American contact, now roam the Owyhee uplands.

Over grazing in the late 1800s and early 1900s left broad expanses of rangeland largely denuded and unprotected from erosive events. Grazing management has led to renewed vegetative cover on these rangelands.

Hundreds of species of native plants still grow in the lower Owyhee subbasin. Native animal species can be observed in all areas.

The Owyhee Dam has changed the hydrology of the lower Owyhee subbasin. Water is now available to lands below the dam. The productivity of lands below Owyhee Dam has vastly increased with the development of irrigation systems. Agriculture has recently made positive changes with improved on-farm irrigation systems, the use of precision fertilization, the control of pests with safer chemicals, and improved crop species.

Water developments throughout the subbasin have increased the availability of water to both livestock and wildlife.

Recent water developments have removed livestock from riparian areas during times when the riparian vegetation would be sensitive to grazing pressure.

Large areas that once contained native vegetation are now primarily weeds. Scotch thistle, poison hemlock, white top, tamarisk, perennial pepperweed, and medusahead are making substantial inroads into the subbasin. Juniper is out of control in the SE corner of the Leslie Gulch area of critical environmental concern (ACEC).

The expansion of tamarisk into prime riparian areas around springs and along gulches poses one of the greatest threats to the continued availability of water originating within the lower Owyhee subbasin for wildlife.

The Owyhee River and Owyhee Reservoir are contaminated with mercury from the legacy mining operations in and around Silver City, Idaho.

Further water developments are needed to remove livestock from some riparian areas during times when the riparian vegetation would be sensitive to grazing pressure.

The Owyhee Dam has created an artificial cold water fishery below the dam which draws anglers not only from the growing population of the Boise metropolitan area, but from elsewhere in the U.S.

Owyhee Reservoir attracts not only boaters but sports fishermen. A large population of nonnative warmwater fish thrive in the reservoir.

B. Discussion

We cannot know what the condition of the watershed would be in the absence of humans. The geology and climate affecting the area would be little different, although even the climate may be changing due to the activities of people elsewhere in the world.

1. Invasive species

Uncontrolled tamarisk in the lower Owyhee River corridor is releasing huge volumes of seed which are not only proliferating in the corridor but are also beginning to infest irrigation canals, irrigation ditches, and cultivated fields. The establishment of tamarisk along irrigation canals and ditches will impose great costs on producers.

Evolution occurs slowly over time. The native plant stands of the rangelands and riparian areas in the lower Owyhee subbasin evolved in the absence of invasive species and in the presence of grazing pressure[1] and periodic fires. Now there are invasive species, a low fire frequency, and in some ACECs the absence of grazing. Native plants are not adapted to compete well under the changed conditions.

Major efforts are needed to halt and reverse the spread of invasive species. To the very great detriment of the environment, the new, more effective, less dangerous herbicides with shorter half lives can not be used on federal lands in Oregon due to a court decision. The continued spread of invasive weed species will result in a degraded, non native environment without the vegetative community which was (and in many places still is) an important component of the ecosystem. The whole web of native insect and higher animal life depends on the continued vigor of native plant species.

There are a number of wilderness study areas (WSAs) in the federal land administered by the Bureau of Land Management (BLM). The BLM is required to protect the areas' wilderness values until congress decides on wilderness status. The wilderness values of many of these areas are being seriously compromised by the replacement of native species with invasive, nonnative species.

2. Mercury

Private individuals and local governments do not have the economic resources to contain the sources of the legacy mercury which continues to flow into the Owyhee River and Reservoir. Federal and state agencies need to be actively involved in preventing the ongoing and future contamination and eliminating this threat to the water quality.

3. Federal ownership of the land

The major portion of land in the lower Owyhee subbasin is federal land. With a small tax base, it is a hardship on Malheur County and other local agencies to provide services to this vast area.

The BLM has served as the steward of much of the land in the lower Owyhee subbasin. Much of the past recuperation of degraded areas of rangeland was accomplished with BLM support and oversight. However, the public land is managed by bureaucracy and bureaucracies are frequently slow in responding or unresponsive to local needs.

If the Owyhee Dam needs repairs, there needs to be a clear understanding that the Bureau of Reclamation can make any changes needed to the road along the Owyhee River below the dam in order to get equipment or materials to the dam site. The dam was completed 75 years ago and cannot be expected to last indefinitely without repairs, both minor and major. If BLM succeeds in making the lower Owyhee River a recreational wild and scenic river, options need to be retained for access for expected dam maintenance and eventual reconstruction.

4. Recreation

Increased populations in SW Idaho are resulting in greater use of the area for recreation. This use today tends to be concentrated in the more easily reached areas. Recreationists do not necessarily have conservation ethics and may leave behind trash, human waste, and scars upon the landscape.

Some individuals lack respect for private property and fences, especially during hunting season. New roads appear where recreationists don't respect the fragility of the landscape.

Despite the increased use of some areas, a large portion of the beautiful places within the subbasin are seldom visited.

5. Absentee landowners

Although this assessment did not identify which privately owned land was held by individuals who do not have a permanent residence on or near their land, throughout the region of SW Idaho and SE Oregon land is being purchased by absentee landowners for real estate speculation. Some of this land may be removed from production and result in less intensive land management with a greater potential for the spread of invasive weeds and juniper.

Speculative investments in land can raise the price of property and greatly restrict attempts by young people to maintain the traditions of family farming and ranching.

C. Large gaps in data

Much basic information about the conditions within the lower Owyhee subbasin is lacking and there is a very poor understanding of the ecological interactions in the

subbasin. These data gaps and unknowns have been enumerated in the other sections of this assessment. A few of these are highlighted here.

1. Hydrology

Since the USGS maps do not distinguish between intermittent and ephemeral streams, ground surveys are necessary to make these determinations. In the lower Owyhee subbasin this information is not available for most drainages. There has been no ground verification of which streams are ephemeral, intermittent, or perennial. The three types can not be evaluated in the same fashion and have dissimilar responses to restoration efforts. Intermittent streams are those which flow for only certain times of the year, when they receive water from springs or runoff. During dry years they may cease to flow entirely or they may be reduced to a series of separate pools. Ephemeral streams only carry water during and immediately after runoff events.

2. Rangeland

We do not understand the impact of juniper expansion on watershed function and water resources. Likewise, we don't know the effects on watershed function and water resources of the conversion of rangeland vegetation to invasive annuals.

Studies are needed on ways to restore native perennial vegetation to rangelands. Is there an acceptable ratio of cheatgrass to native plants where the ecological processes of rangeland still function? We have little information on the response of different vegetative communities to livestock grazing, timing of the grazing, or removal of grazing. Can the removal of livestock accelerate conversion of rangeland to cheatgrass or other invasive species?

3. Riparian

In the lower Owyhee subbasin, the potential of riparian areas based on physical, biological, and chemical conditions is not known. The site specific physical, biological, and chemical conditions of riparian areas have not been surveyed. The management that will result in maintaining, restoring, improving, or expanding riparian areas in the lower Owyhee subbasin is poorly defined.

4. Fish

There have been no studies of the interactions between the species of fish in the lower Owyhee subbasin. Little is known about the distribution of each specie within the subbasin. There is extremely little information on the non-game fish populations, fluctuations in their populations, or reasons for the fluctuations.

There are many introduced fish species in the lower Owyhee subbasin. How do the nonnative fish compete for food and habitat with the native fish? What effects are the hatchery trout stocked into the subbasin having on the native redband trout populations? What would the impacts be on other salmonid species if the predatory nonnative European brown trout were flushed downstream by a major flood event?

What will be the effect of the appearance of Lahontan tui chub in the Owyhee Reservoir?

5. Water quality

Past studies have positively identified the Silver City area as a source of mercury. Follow up studies are needed to characterize mercury sources, concentrations, and distribution in the Silver City area.

No comprehensive survey has been done to precisely locate possible sources of mercury in the lower Owyhee subbasin nor to identify geologic locations in the lower Owyhee subbasin that have mercury concentrations which might contribute to mercury in the river system if the sites become disturbed in the future.

In the lower Owyhee subbasin, the relative contribution to stream heating from solar radiation, from the air and from the ground have not been described.

Even though water quality criteria are in place, the basic information is lacking on site response to climate, hydrology, geology, soil, slope, plant and animal communities, and other environmental features needed to develop water quality criteria for the lower Owyhee subbasin.

6. Wildlife

The interactions between different wildlife species, introduced wild horse populations, and cattle are poorly understood including forage preferences and usage over the year. Few studies are available pertinent to the lower Owyhee subbasin on the effects of specific ranching practices on forage for wildlife.

How many cougar are actually in the lower Owyhee subbasin? At what level does the cougar population significantly affect wildlife populations and ranching?

How are wildlife populations being influenced by the expansion of weeds? Are restrictions on weed control placed on BLM by past lawsuits having unintended negative effects on the native food supplies required by native wildlife?

D. Conclusion

The people who made their living in the lower Owyhee subbasin through the 1930s were exceedingly poor. They utilized whatever resources they could. The stewardship of the land, both private and public, has greatly improved since the 1930s.

Valuable information developed in other regions can be applied to some extent to future decision processes affecting the lower Owyhee subbasin. However, because of the relative isolation and low potential productivity, much of the specific information necessary to make informed decisions about future actions has not been developed. Generalizing from other areas without the locally developed information can lead to decisions guided by misinformation resulting in possibly disastrous consequences to the ecological integrity of the lower Owyhee subbasin.

Local information needs to be developed so that future choices can be based on facts and the best scientific knowledge available. Decisions need to be guided by what is best for the ecology of the subbasin and the people that it supports, not by a political agenda. Uncontrolled increased exploitation of resources or complete abandonment of use are both ecologically untenable.

The lower Owyhee subbasin contains many areas of natural beauty. The people of the area have been able to work together to solve many problems. The coming changes in climate and the world economy can not be foreseen, but the lower Owyhee subbasin contains individuals who will continue to cooperate to solve local challenges.

References

1. Burkhardt, J. Wayne. 1996. Herbivory in the intermountain west: an overview of evolutionary history, historic cultural impacts, and lessons from the past. Idaho Forest, Wildlife and Range Experiment Station, University of Idaho. Sta. Bul. 58.