UMATILLA INDIAN RESERVATION
AGRICULTURAL RESOURCE MANAGEMENT PLAN

APPROVAL RECOMMENDED BY:

Teresa Farnsworth for EQ — 01/21/2016

DIRECTOR, DEPARTMENT OF NATURAL RESOURCES — **DATE**
CONFEDERATED TRIBES OF THE
UMATILLA INDIAN RESERVATION

02/10/2016

REGIONAL RANGE SPECIALIST, NORTHWEST REGION — **DATE**
BUREAU OF INDIAN AFFAIRS

APPROVED BY:

2-1-16

CHAIRMAN, BOARD OF TRUSTEES — **DATE**
CONFEDERATED TRIBES OF THE
UMATILLA INDIAN RESERVATION

2.2.16

SUPERINTENDENT, UMATILLA AGENCY — **DATE**
BUREAU OF INDIAN AFFAIRS

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REGIONAL DIRECTOR, NORTHWEST REGION — **DATE**
BUREAU OF INDIAN AFFAIRS

EXECUTIVE SUMMARY

Introduction

The Umatilla Indian Reservation (UIR) established by the Treaty of June 9, 1855, 12 Stat. 945, between the United States and the Cayuse, Umatilla, and Walla Walla Tribes lies along the foothills of the Blue Mountains in northeastern Oregon immediately east of Pendleton. The UIR covers a variety of terrain and land uses including rough uneven forest and rangelands, gently sloping agricultural fields, and long narrow floodplains supporting riparian vegetation.

Consistent with the provisions of the American Indian Agricultural Resources Management Act of 1993 (107 Stat. 2011, Title 25 United States Code 3701 et seq.) and the Indian Self-Determination and Education Assistance Act [25 U.S.C. 450 et seq.], the Secretary shall provide for the management of Indian agricultural lands to achieve the following objectives:

(1) To protect, conserve, utilize, and maintain the highest productive potential on Indian agricultural lands through the application of sound conservation practices and techniques. These practices and techniques shall be applied to planning, development, inventorying, classification, and management of agricultural resources.

(2) To increase production and expand the diversity and availability of agricultural products for subsistence, income, and employment of Indians and Alaska Natives, through the development of agricultural resources on Indian lands.

(3) To manage agricultural resources consistent with integrated resource management plans in order to protect and maintain other values such as wildlife, fisheries, cultural resources, recreation and to regulate water runoff and minimize soil erosion.

(4) To enable Indian farmers and ranchers to maximize the potential benefits available to them through their land by providing technical assistance, training, and education in conservation practices, management and economics of agribusiness, sources and use of credit and marketing of agricultural products, and other applicable subject areas.

(5) To develop Indian agricultural lands and associated values added industries of Indians and Indian tribes to promote self-sustaining communities.

(6) To assist trust and restricted Indian landowners in leasing their agricultural lands for a reasonable annual return, consistent with prudent management and conservation practices, and community goals as expressed in the tribal management plans and appropriate tribal ordinances.

Purpose and Need

The American Indian Agricultural Resources Management Act of 1993 (107 Stat. 2011, Title 25 United States Code 3701 et seq.) mandates the development of an Agricultural Resource Management Plan (AMP) for the development and administration of Indian agricultural lands. The AMP specifies actions to protect, conserve, utilize, and maintain the sustained productivity of Indian agricultural land consistent with other cultural and natural resource values. The AMP will chart a course towards the compatible co-existence of a healthy environment and a prosperous agricultural sector.

The AMP will promote an improved set of processes and procedures promoting wise stewardship through:

- Assessment of physical and biological conditions
- Correlation of physical and biological conditions with desirable future conditions
- Assessment of lease compliance and mitigation of non-compliance issues.
- Use of adaptive management

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) depends on natural resources to assist in the development of a strong, diversified economy while preserving cultural, subsistence, and aesthetic values. Fishing and hunting as well as the gathering of roots and berries are deeply ingrained within the Tribal social structure. The harvesting, processing, manufacturing, and marketing of farm, forest, and livestock products provide income to landowners and the Tribes. Together with the Wildhorse Resort and Casino, use of natural resources form the foundation of the economy of the UIR.

Agriculture provides income to over 4500 Indian landowners of trust land on the UIR. Due to the United States settlement of the Cobell class action lawsuit and the CTUIR Inheritance Code the trend of land passing to non-tribal members has reversed. Agricultural trust land encompasses approximately 27,000 acres within the present boundaries of the Reservation representing some 510 allotments. The CTUIR, under self-governance compact, manages this property in consultation with Indian beneficiaries that hold beneficial title to the land. The Agency Superintendent fulfills the Bureau of Indian Affairs' (BIA) trust obligations through mandated inherent federal functions, including approval of leases, permits, right of ways, etc.

Primary Issues and Concerns

An Interdisciplinary Team (IDT) comprised of BIA and CTUIR natural resource management staff met with the Board of Trustees of the CTUIR to identify key issues and concerns that should be addressed in the Agricultural Management Plan.

The IDT identified issues and concerns associated with the following categories as significant to the development of an Agricultural Management Plan:

1) Soil Quality and Erosion
2) Water Quality
3) Wildlife and Fish Habitat
4) Air Quality
5) Monitoring and Evaluation
6) Weed Control
7) Idle Lands
8) Threatened and Endangered Species
9) Implementation Costs
10) Cost/Benefit Analysis
11) Cultural Resources and Traditional Uses
12) Transportation
13) Lease Compliance

Management Direction

The mission and functions of the Department of Natural Resources (DNR) are guided by the *First Foods Paradigm*. From the CTUIR point of view, natural resources upon which Tribal members depend are cultural resources, whether they are within the reservation, in the ceded lands, or at usual and accustomed fishing/hunting/gathering areas. In this respect, traditional archaeological practice differs from the Tribal perspective.

Incorporating this point of view, the CTUIR DNR has adopted a mission based on indigenous foods served at Tribal meals. These foods are served at ritual meals and are known to the CTUIR as *First Foods*. Listed in the order in which they are served, they are: water, salmon, deer, cous, and huckleberry. The CTUIR anticipates the need to call attention to ecological processes that sustain and produce the remaining First Foods in order to be responsible and responsive to the CTUIR community.

The *First Foods* are central to the CTUIR DNR mission statement:

> *"To protect, restore, and enhance the First Foods - water, salmon, deer, cous, and huckleberry - for the perpetual cultural, economic, and sovereign benefit of the CTUIR. We will accomplish this utilizing traditional ecological and cultural knowledge and science to inform: 1) population and habitat management goals and actions; and 2) natural resource policies and regulatory mechanisms."*

The *First Foods* serving order includes representatives of "men's foods"--water, salmon, deer; and "women's foods"--cous and huckleberry. These gender categories reflect the harvest, preparation, and serving roles associated with *First Foods*. Much emphasis has deservedly been placed on water and salmon in response to water quality impacts and aquatic Endangered Species Act listings. The CTUIR has identified the need to call attention to ecological processes that sustain and produce *First Foods* in order to be responsible and responsive to the CTUIR community.

The *First Foods* are considered by the CTUIR DNR to constitute the *minimum* ecological products necessary to sustain CTUIR culture. Management efforts need to incorporate ecological processes (for example riparian function and high flows in floodplains) that relate to the sustained production of *First Foods*.

In addressing the CTUIR mission the Inter-Disciplinary Team (IDT) used a three-step process to identify a reasonable range of alternatives that respond to the issues and concerns identified during the planning process. The IDT first established goals and objectives for management of agricultural resources on the UIR and then identified the standards and guidelines, or the physical, biological, and social conditions necessary for any of the alternatives to meet the goals and objectives. Finally, the IDT formulated three alternative management options, (Alternatives A, B, and C) expected to meet the goals and objectives if fully funded and implemented. In formulating these management alternatives, the IDT considered the effects that cropping system manipulation may have on natural resource values and the economic impact to landowners from converting riparian areas to permanent native vegetation cover. Planning principles included:

- Any management program must utilize the best management practices available to manage cropland depending on soil resources, rainfall, topography, farming history, crop potential, geographic location, presence of or the need to protect culturally significant sites, sensitive plants or animals, fish and wildlife habitat requirements, watershed values, legal policy, and budget constraints.

- The management program will ensure continuous public involvement in all phases of development and implementation of activities.

- The management program must follow established procedures for site analysis of area resources, including inventory of soil, water, plant and animal status, and economic conditions for land utilization. This information is used to document successes and failures, monitoring of improvements or degradation in resource conditions, long-term viability of management practices, and whether changes are necessary.

- The management program must include a process for modifications in response to the changing ecosystem, economic and social conditions as identified by the monitoring process.

The IDT formed alternatives with the idea in mind that incentive programs have the potential to generate partial compensation for lands removed from production due to the elevated conservation measures. These programs will also provide incentives for landowners and lessees to implement practices that provide environmental benefits. In some cases, other mitigation funds may be necessary to compensate landowners for loss of revenue on lands taken out of production due to conservation measures offered by each alternative. On trust property the Superintendent will consider options if incentive programs are not available to provide income within conservation areas.

Farming is the principal land use of the lowlands within Umatilla County. The CTUIR and BIA intend to manage agricultural lands in an integrated manner. Fragmenting farming operations are small diverse waterways important to the Tribes due to their contribution to the overall water quality/quantity and health of fish and wildlife species. Where riparian areas are in good condition, management direction requires they remain in good condition. Where the condition of the ecosystems is not good, management must occur that leads to improvement in ecosystem integrity and resiliency. The intent of management for habitats used by threatened and endangered species is to protect and/or improve those habitats contributing to recovery of the species.

The CTUIR shall require each new lease beginning after the approval of this plan to include a RUSLE2 analysis in the crop plan. Cropping practices meeting a predicted zero or positive (± 0.05) Soil Conditioning Index (SCI) will be required on all agricultural lands regardless of Highly Erodible Land (HEL) status. The required residue levels in NRCS Conservation Plans are enforced on all HEL ground. The CTUIR has the sole authority through crop plan provisions to enforce conservation compliance on Indian Trust land and through its relationship with the Oregon Department of Agriculture may enforce requirements on non-Indian fee land.

Riparian management zones (RMZ) with inner zones at minimum one-quarter (¼) of the total RMZ width on Strahler Modified Stream Orders 1-4 will be voluntary for the first ten years from the final approval of this plan. At the conclusion of the ten-year voluntary period, the plan will be re-evaluated and updated to reflect changes in farming practices, changes in agricultural economic conditions and progress toward meeting water quality standards. At such time, the CTUIR Board of Trustees (BOT) will choose to continue with the voluntary buffer adoption, modify the existing buffer implementation program, begin mandatory buffer implementation, or cease the buffer implementation program.

The CTUIR will establish an educational outreach program with the goal of creating at minimum buffers one-quarter (¼) of the RMZ width on trust land. The educational program will utilize promotional materials and activities targeting landowners and operators and encouraging the adoption of the voluntary buffer zones. The CTUIR has dedicated staff to develop and implement projects that provide adequate riparian vegetation while minimizing the economic impacts of lost production within riparian management zones. Farm contracts will be limited to a 5-year duration in the event that lessees or permittees cannot or will not establish and maintain voluntary ¼ RMZ buffers. Management will utilize leasing regulations to promote incentives that reward proper application of upland and streamside conservation measures. The five-year contract limit will allow the Department of Natural Resources to plan and implement conservation practices that addresses the desired conditions for stream zone buffers.

For the first ten years, entry into the established inner zone will be discouraged except in designated crossing areas and for the purposes of improving the function and condition of the riparian area and stream channel. Mechanically improving stream channels must be planned and permitted in coordination with the CTUIR Water Resources Program (WRP). At the end of the ten-year voluntary period, this requirement will be re-evaluated. Throughout plan implementation, the Soil Conservationist will define and promote the appropriate buffer standards relating to equipment usage, plant densities, and types within the conservation plan using available technical guides.

Table 1: Minimum Inner Zone Widths:

Stream Order	Total Buffer Width	1/4 RMZ Width
0 Order	0 feet	0 feet
1st Order	72 feet	18 feet
2nd Order	150 feet	38 feet
3rd Order	224 feet	56 feet
4th Order	300 feet	75 feet

This plan requires all farming operations to protect the soil during critical erosion periods; defined as December 1 thru March 1. Utilization of Federal and Tribal conservation programs will optimize productivity of the resources and offset the costs while implementing the requirements of this plan.

Additional personnel will be necessary to ensure compliance with this Plan and promote participation in federal, state, and local conservation projects and programs.

Personnel required to facilitate this plan include:

1) One (1.0 FTE) Soil Conservationist II to analyze field data, develop cropping plans, respond to complaints, monitor for lease compliance, optimize production, assist other land managers (Tribal and other organizational natural resource entities), and identify and promote use of tracts that have or may fall idle.

2) A second (1.0 FTE) Watershed Coordinator to develop buffer plans, assist in the implementation of conservation efforts, solicit and facilitate incentive programs, provide technical assistance and educational outreach to landowners and operators, monitor stream conditions, and monitor buffer compliance.

3) One (0.5 FTE) Soil Conservation Technician II to assist in developing buffer plans, the implementation of conservation efforts, solicit and facilitate incentive programs, provide technical assistance and educational outreach to landowners and operators, monitor stream conditions, and monitor buffer compliance.

These three positions will work together to ensure lease implementation and compliance occur in a timely and efficient manner and to inform landowners and tenants of the requirements of this Management Plan/EA and the conservation practices to be applied.

Enhancing riparian function within the agricultural zone of the reservation includes promoting, planning and implementing permanent riparian vegetation that:

1) Contributes to bank stability;
2) Reduces sediment accumulation and flow;
3) Reduces stream heating where site potential allows establishment of shrub and tree species;
4) Filters pollutants from upland crop management activities; and
5) Provides cover and shade to aquatic species.

Implementing upland crop residue benefits soil health, function, crop productivity and soil sustainability by:

1) Increasing organic matter;
2) Improving biological activity in the soil;
3) Supplying slow release organic fertilizer to plants;
4) Increases percolation allowing increased soil moisture;
5) Securing pesticide and inorganics on site for intended use; and
6) Reducing erosion from cultivated slopes.

BIA and CTUIR estimated impacts associated with implementation of this plan. Table 2 outlines expectations if appropriate budget and staff are dedicated to this effort.

Table 2 Anticipated Effects of Implementation of Alternatives for the Agricultural Management Plan

		Alternative A		Alternative B		Alternative C
1	**Soil Quality and Erosion**					
	Estimated Soil Loss (tons)	maintain		decrease		decrease
	Estimated Acres with Residue Management (acres)	maintain		Increase		Increase
2	**Water Quality**					
	Total Suspended Solids	maintain		decrease		decrease
	Turbidity	maintain		decrease		decrease
3	**Wildlife and Fish Habitat**					
	Estimated Aquatic Habitat Acres	maintain		Increase		Increase
	Estimated Terrestrial Habitat Acres	maintain		Increase		Increase
4	**Air Quality**					
	Estimated Soil Particulate matter	maintain		decrease		decrease
	Estimated Soil Loss (tons)	maintain		decrease		decrease
5	**Noxious Weed Control**					
	Estimated Infested Acres	maintain		maintain		maintain
6	**Idle Lands**					
	Estimated idle acres	maintain		decrease		decrease
7	**Implementation Costs**					
	Program Funding	maintain		maintain		maintain
8	**Cultural Resources/Traditional Uses**					
	Acres accessible to cultural/traditional use	maintain		maintain		maintain

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Chapter I – Introduction

Purpose and Need

The purpose for the Agricultural Management Plan (AMP) is to comply with provisions of the American Indian Agricultural Resource Act of 1992 and to direct the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and the Bureau of Indian Affairs (BIA) to better manage agricultural lands for a variety of cultural and economic uses. The CTUIR relies upon natural resources to promote a strong diversified economy while preserving cultural, subsistence and aesthetic values. Fishing and hunting as well as the gathering of roots and berries are deeply rooted within the Tribal social structure. The harvesting, processing, manufacturing, and marketing of farm, forest, livestock, and mineral products provide income to landowners and the Tribes.

The American Indian Agricultural Resources Management Act of 1993 (107 Stat. 2011, Title 25 United States Code 3701 et seq.) mandates an Agricultural Resource Management Plan for the development and administration of Indian agricultural lands. The AMP specifies actions to protect, conserve, utilize, and maintain the sustained productivity of Indian agricultural land consistent with other cultural and natural resource values. The AMP will chart a course towards the compatible co-existence of a healthy environment and a prosperous agricultural sector.

The AMP provides an improved set of processes and procedures promoting wise stewardship through:

- Assessment of physical and biological conditions
- Correlation of physical and biological conditions with desirable future conditions
- Assessment of lease compliance and mitigation of non-compliance issues
- Use of adaptive management

Agriculture plays a significant role in the regional economy and more specifically the UIR. The majority of land on the Reservation is in agricultural or livestock production. The City of Pendleton, Umatilla County, and the UIR have historically relied heavily on natural resources and agriculture. Agricultural land on the Reservation is tremendously diverse in both physical attributes and type of use. The following table represents the breakdown in crops grown on trust land on the Reservation for the 2011 crop year.

Table 1: 2011 Trust Acreage by Crop and Land Use

Crop / Use	Acreage	Percent of Total
Hay	844.13	3%
CRP	4163.53	16%
Fallow	8183.2	31%
Wheat	9865.54	37%
Peas	757.49	3%
Idle	2607.8	10%

Total:	26421.69	100%
Land Use	**Acreage**	**Percent of Total**
Cropped HEL*	16896.4	63%
Cropped NHEL**	7244.18	27%
Idle HEL	1356.0	5%
Idle NHEL	1479.68	5%
Total:	26,976.30	100.00%

* Highly Erodible Land
** Non-Highly Erodible Land
***** Conservation Reserve Program**

Figure 2: Proportion of 2011 Crops

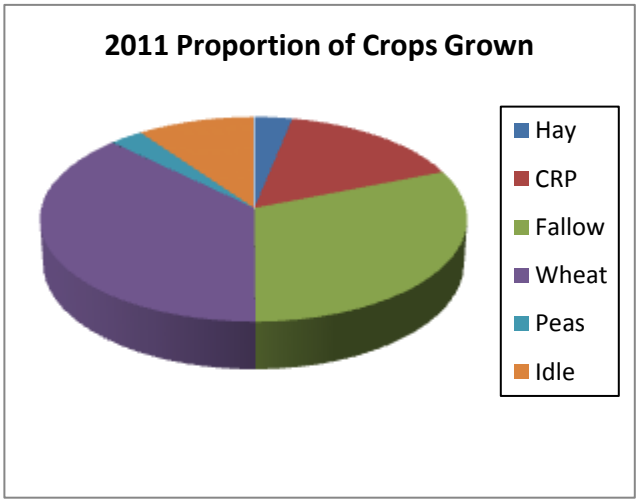
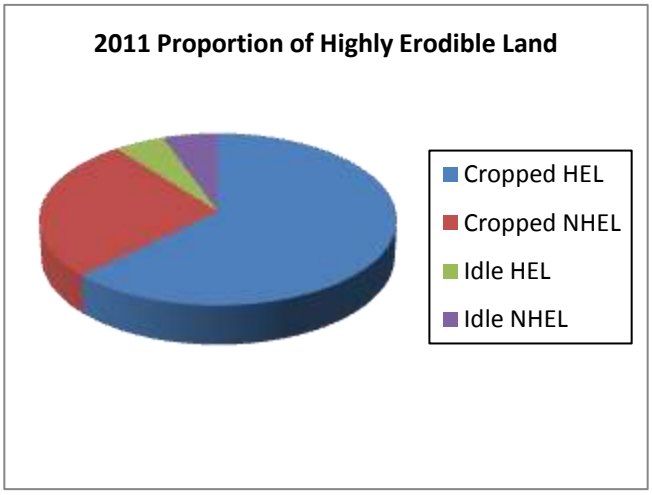


Figure 3: Highly Erodible Land



Diverse land use is the result of a number of variables, most important of which include rainfall, topography, current use, climate, soils, potential for irrigation, productivity, and location.

Process for the Development of the Agricultural Management Plan

The Inter-Disciplinary Team (IDT) used a three-step process to identify a reasonable range of alternatives that respond to the issues and concerns identified during the planning process. The IDT first established goals and objectives for management of agricultural resources on the UIR and then identified the standards and guidelines, or the physical, biological, and social conditions necessary for any of the alternatives to meet the goals and objectives. Finally, the IDT formulated three alternative management options, (Alternatives A, B, and C) expected to meet the goals and objectives if fully funded and implemented. In formulating these management alternatives, the IDT considered the effects that cropping system manipulation may have on natural resource values and the economic impact to landowners from converting riparian areas to permanent native vegetation cover. Planning principles included:

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- The management program will ensure continuous public involvement in all phases of development and implementation of activities.

- The management program must follow established procedures for site analysis of area resources, including inventory of soil, water, plant and animal status, and economic conditions for land utilization. This information is used to document successes and failures, monitoring of improvements or degradation in resource conditions, long-term viability of management practices, and whether changes are necessary.

- The management program must include a process for modifications in response to the changing ecosystem, economic and social conditions as identified by the monitoring process.

The IDT formed alternatives with the idea in mind that incentive programs have the potential to generate partial compensation for lands removed from production due to the elevated conservation measures. These programs will also provide incentives for landowners and lessees to implement practices that provide environmental benefits. In some cases, other mitigation funds may be necessary to compensate landowners for loss of revenue on lands taken out of production due to conservation measures mandated by each alternative. On trust property the Superintendent will consider options if incentive programs are not available to provide income within conservation areas.

Trust Responsibility of Federal Government

The relationship between the United States and Indian tribes is based on and built around the doctrine of trust responsibility. The United States government has a unique legal relationship with American Indian tribes. This relationship is founded on the Constitution of the United States and is more fully set out in treaties, federal statues, and federal court decisions. The federal government must consult with tribal governments prior to taking actions that affect federally recognized tribal governments. This relationship is committed to the protection of, and respect for, the rights of Indian self-government.

The United States, through its trust relationship with Indian tribes and individual tribal members, holds title to Indian trust land for the beneficial owners--either tribes or individuals. Therefore, the federal government has a responsibility, charge, and duty to beneficiaries of the trust. This trust relationship has been established as a result of treaties, statues, regulations, and federal court decisions. The trust relationship between the United States and American Indians is unique by the mere fact that the United States is the trustee.

Under authority of the Indian Self-Determination and Education Assistance Act of 1975, as amended, Title 25 U.S.C. 450 *et seq.*, the CTUIR assumed responsibility for the Range and Agriculture management program on the UIR on January 1, 2008. The only remaining inherent federal functions for agricultural management on trust lands are approval of the AMP, approval of advertised or negotiated leases and permits on agricultural land, enforcement of lease violation and trespass, and the ruling of such appeals that pertain to agricultural management, leasing and permitting.

Relationship to Federal Statutes

Consistent with the provisions of the American Indian Agricultural Resources Management Act of 1993 (107 Stat. 2011, Title 25 United States Code 3701 et seq.) and the Indian Self-Determination and Education Assistance Act [25 U.S.C. 450 et seq.], the Secretary shall provide for the management of Indian agricultural lands to achieve the following objectives:

- To protect, conserve, utilize, and maintain the highest productive potential on Indian agricultural lands through the application of sound conservation practices and techniques. These practices and techniques shall be applied to planning, development, inventorying, classification, and management of agricultural resources.

- To increase production and expand the diversity and availability of agricultural products for subsistence, income, and employment of Indians and Alaska Natives, through the development of agricultural resources on Indian lands.

- To manage agricultural resources consistent with integrated resource management plans in order to protect and maintain other values such as wildlife, fisheries, cultural resources, recreation and to regulate water runoff and minimize soil erosion.

- To enable Indian farmers and ranchers to maximize the potential benefits available to them through their land by providing technical assistance, training, and education in conservation practices, management and economics of agribusiness, sources and use of credit and marketing of agricultural products, and other applicable subject areas.

- To develop Indian agricultural lands and associated values added industries of Indians and Indian tribes to promote self-sustaining communities.

- To assist trust and restricted Indian landowners in leasing their agricultural lands for a reasonable annual return, consistent with prudent management and conservation practices, and community goals as expressed in the tribal management plans and appropriate tribal ordinances.

Additionally, 25 U.S.C. § 3701 of the American Indian Agricultural Resources Management Act states:

- The United States has a trust responsibility to protect, conserve, utilize, and manage Indian agricultural lands consistent with its fiduciary obligation and its unique relationship with Indian tribes;

- Indian agricultural lands are renewable and manageable natural resources which are vital to the economic, social, and cultural welfare of many Indian tribes and their members; and

- Development and management of Indian agricultural lands in accordance with integrated resource management plans will ensure proper management of Indian agricultural lands and will produce increased economic returns, enhance Indian self-determination, promote employment opportunities, and improve the social and economic well-being of Indian and surrounding communities.

In addition to the Indian Self-Determination and Education Assistance Act [25 U.S.C. 450 et seq.], and the American Indian Agricultural Resources Management Act [25 U.S.C 3701 et seq.], there are other federal statutes that govern management of agricultural resources on Indian trust lands.

National Historic Preservation Act of 1966; Title 16 U.S.C. § 470 et seq.

The National Historic Preservation Act of 1966 (NHPA), as amended, protects historic and archeological properties during the planning and implementation of federal undertakings. Cultural resources must be identified during the planning phase of a project, the potential impacts to affected cultural resources must be determined, and potentially adverse impacts on any significant sites that may be affected must be mitigated.

Pursuant to Section 101(d)(2) of the NHPA, the CTUIR assumed the responsibilities of the State Historic Preservation Office within the Umatilla Indian Reservation. All federal undertakings are reviewed by the Tribal Historic Preservation Office.

Archaeological Resources Protection Act of 1979; Title 16 U.S.C. §470aa et seq.

The Archeological Resources Protection Act of 1979 (ARPA), as amended, protects archeological resources on public and Indian lands by establishing criminal and civil penalties for unlawful excavation, removal, or destruction of such resources, and sets up permitting policies through the appropriate land manager.

Native American Graves Protection and Repatriation Act; Title 25 U.S.C. § 3000 et seq.

The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), as amended, protects Native American burials during planning and implementation of projects on federal or trust lands. In the event of a known burial, the project must address treatment of the burial in consultation with the CTUIR. In the event of an inadvertent discovery of Native American human remains, all work in the immediate vicinity of the burial must cease in order to develop a

Plan of Action under NAGPRA to address treatment of the remains, in conformance with the NAGPRA regulations, Title 42 Code of Federal Regulations Part 10.1 *et seq*.

National Environmental Policy Act of 1969; Title 42 U.S.C. § 4321-4370d

The National Environmental Policy Act of 1969 (NEPA), as amended, requires that federal agencies consider the potential effects of actions that might adversely affect the environment and consider possible alternative courses of action to reduce impacts before approving the project.

NEPA's most significant effect was to set up procedural requirements for all federal government agencies to prepare environmental assessments (EAs) and environmental impact statements (EISs). EAs and EISs contain statements of the environmental effects of proposed federal agency actions. NEPA's procedural requirements apply to all federal agencies in the executive branch.

Federal agencies are required to prepare various reports, the most significant being an Environmental Impact Statement**,** or EIS, for all "major federal actions significantly affecting the quality of the human environment." Special attention must be paid to each of the words in the above phrase. Decisions must be made as to whether each action is major, is significant in its effects, and how the quality of the human environment is influenced. An EIS is an often extensive document which must describe the environmental impacts of the proposed action, the adverse environmental impacts which cannot be avoided, the reasonable alternatives to the proposed action, the relationship between short-term uses and long-term productivity of the environment, and any irreversible commitments of resources involved in the proposed action.

Often, an Environmental Assessment (EA) is prepared to determine whether or not an EIS will be required. EA's include brief discussions of the environmental impacts of, and alternatives to, a proposed project. If an EA indicates that no significant impact will occur, then a Finding of No Significant Impact (FONSI) may be issued which presents the reasons why the action will not produce significant environmental impacts.

If an action is shown to cause great harm to the environment, there is no requirement for that action to be canceled, or even changed. The EIS merely mandates that federal agencies think about the consequences of their actions and possible alternatives.

Endangered Species Act of 1973; Title 16 U.S.C. § 1531 et seq.

The Endangered Species Act (ESA) of 1973, as amended, provides a means for the protection of all endangered and threatened plant and animal species. The law requires federal agencies, in consultation with the U.S. Fish and Wildlife Service and/or the NOAA Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife. Likewise, import, export, interstate, and foreign commerce of listed species are all generally prohibited.

Clean Air Act of 1970; Title 42 U.S.C. § 7401 et seq.

The Clean Air Act (CAA) as amended, is the principal statute addressing air quality concerns, the Clean Air Act was first enacted in 1955, with major revisions in 1970, 1977, and 1990. CAA was originally enacted to protect the quality of the nation's air resources and the public health and welfare. The second purpose of the CAA is to initiate a research and development program to achieve the prevention and control of air pollution. Third, the act provides means for technical and financial assistance for state and local governments so that they may carry out air pollution prevention and control programs. The final goal of the CAA is to encourage the development of regional air pollution prevention and control programs.

The law authorizes the Environmental Protection Agency to establish National Ambient Air Quality Standards (NAAQS) to protect health and public welfare and to regulate emissions of hazardous air pollutants. Federal agencies must comply with all federal, state and tribal air quality standards and requirements for smoke management when conducting prescribed fires.

Clean Water Act of 1972; Title 33 U.S.C. § 1251 et seq.

The Clean Water Act (CWA) of 1972, as amended, established the basic structure for regulating discharges of pollutants into the waters of the United States and establishing quality standards for surface waters. In accordance with provisions of this statute, the CTUIR and the Environmental Protection Agency have developed Total Maximum Daily Loads and a Water Quality Management Plan for the UIR.

Relationship to CTUIR Missions

The mission and functions of the Department of Natural Resources (DNR) are guided by the *First Foods Paradigm*. From the CTUIR point of view, natural resources upon which Tribal members depend are cultural resources, whether they are within the reservation, in the ceded lands, or at usual and accustomed fishing/hunting/gathering areas. In this respect, traditional archaeological practice differs from the Tribal perspective.

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The *First Foods* are considered by the CTUIR DNR to constitute the *minimum* ecological products necessary to sustain CTUIR culture. Management efforts need to incorporate ecological processes (for example riparian function and high flows in floodplains) that relate to the sustained production of *First Foods*.

The mission of the Department of Economic and Community Development is:

> *Improve and diversify the overall economy of the Umatilla Tribes while respecting the traditional cultural values.*

The Department of Economic and Community Development (DECD) has, and will continue to have, a role in agricultural management. As the arm of the Tribe pursuing economic development opportunities, DECD has sought to utilize and make economically viable agriculture operations through its Realty Program and Tribal Farm Enterprise. One intention of purchasing land on the reservation is to self-fund those purchases by economic activities such as grazing, logging, farming or other management activities.

Relationship to Other Plans

Comprehensive Plan of the Confederated Tribes of the Umatilla Indian Reservation

In 2010, the CTUIR, through Board of Trustees Resolution Number 10-079, adopted a Comprehensive Plan that set forth the long range goals of its members as they relate to treaty reserved rights, both on and off the Umatilla Indian Reservation, and the current and future needs of the people. The Comprehensive Plan established the goal of promoting integrated natural resource management to ensure the long-term health, availability, wise use, and production of natural resources consistent with Tribal cultural values and sound management principles.

Two pertinent objectives of the Comprehensive Plan for management of natural resources include: (1) "To ensure that ground and surface waters are available to satisfy CTUIR treaty rights, the needs of CTUIR members, and the citizens of the Umatilla Indian Reservation" (2) "To Protect, enhance, and restore functional floodplain, channel, and watershed processes to provide sustainable and healthy habitat for aquatic species of the First Food order". Implementation of upland and riparian soil conservation methods provides direct impacts to meeting water and floodplain function improvements.

Columbia Basin Salmon Policy

In 1995, the CTUIR, through Board of Trustees Resolution Number 95-26, adopted a Columbia Basin Salmon Policy which stated that all watersheds in the Columbia Basin must be managed with standards comparable to those in the Upper Grande Ronde Anadromous Fish Habitat Protection, Restoration and Monitoring Plan. Therefore, this policy mandates the establishment of riparian management zones with the width of such zones based on the stream order.

Water Code and Total Maximum Daily Load

In 2003, the CTUIR Board of Trustees adopted Resolution Number 03-100, enacting a comprehensive Water Code integrating Water Quality Implementing Provisions and Stream Zone Alteration Regulations into its text. The Water Code established an anti-degradation policy to provide for the maintenance and protection of waters of the Umatilla Indian Reservation. The Water Code further provided that any person who performs any activity that alters stream flow, water quality, ground contours, or perennial vegetation in several named stream zones on the Umatilla Indian Reservation first had to obtain a valid Stream Zone Alteration Permit.

In 2004, the CTUIR Board of Trustees adopted Resolution Number 04-73, enacting a Total Maximum Daily Load (TMDL) "to restore water quality and cultural integrity" of the waters of the reservation. The TMDL set water quality restoration targets for two pollutants, temperature and turbidity. The TMDL seeks to reduce late summer stream temperatures and the amount of in-stream fine sediments as much as possible.

Other Natural Resource Management Plans

The Agricultural Management Plan forms one leg of a comprehensive Integrated Natural Resource Management Plan for the Umatilla Indian Reservation (Figure 1-1). The BIA and CTUIR adopted a Wildland Fire Management Plan in 2000, and a Forest Management Plan is 2010. The Water Commission of the CTUIR adopted a Water Quality Management Plan in 2008 that identifies best management practices necessary to achieve the water quality objectives. These best management practices include, but are not limited to, establishment of streamside (riparian) management zones, and ground cover maintenance.

Other natural resource management planning efforts currently underway include: (1) a Range Management Plan, and (2) a Noxious Weed Management Plan. The CTUIR plans to initiate efforts to develop a Travel and Access Management Plan to address important cultural and natural resource values.

Transportation System Plan and Right-of-Way Issues

In 2009, the CTUIR, through Board of Trustees Resolution Number 09-022, formally established the Right-of-Way (ROW) Working Group. The CTUIR established the Right-of-Way Working Group to address issues associated with the lack of recorded easements for many of the roads on

the UIR. It is likely right-of-way issues will be encountered in implementation of the Agricultural Management Plan.

Terminology in the Agricultural Management Plan

The Agricultural Management Plan describes the management direction for the BIA and CTUIR to achieve desired outcomes for agricultural management. There are basically four types of direction given by the Agricultural Management Plan in the pages that follow: desired conditions, goals, objectives, and standards. Each of these types is defined in detail below.

Goals are concise statements that help described desired conditions or how to achieve conditions. Goals are typically designed to maintain conditions, if they are currently within their desired range, or restore conditions to their desired range if they are currently outside that range. Goals are normally expressed in broad general terms.

Objectives are concise statements of actions or results designed to help achieve goals. Objectives form the basis for project level actions or proposals to help achieve goals. The management actions outline a decade of voluntary involvement. At the conclusion of the voluntary period staff and policy makers shall evaluate progress and decide how to proceed with meeting state goals. The monitoring and evaluation program will insure vegetation and soil treatments are in fact achieving desired outcomes.

Standards are limitations placed on management actions. Standards are typically action restrictions designed to prevent degradation of resource conditions so that conditions can be maintained or restored over time. They represent a preferred or advisable course of action generally expected to be carried out.

Guidelines are strongly encouraged recommendations for the implementation of a practice or program with in the resources area.

Adaptive Management

An adaptive management strategy, which is an ongoing process, is needed in order to effectively move toward and maintain ecological integrity, as well as cultural and economic resiliency. The intent of adaptive management is to use a continuous process of planning, implementing, monitoring, and evaluating management strategies (Figure 1-2). Management strategies may need to be adjusted when:

- An event changes the characteristics of the environment.
- New information accumulates over time, through monitoring, that indicates objectives are not being met.
- Research indicates a need for change.

Figure 1-1. Concept For An Integrated Natural Resource Management Plan

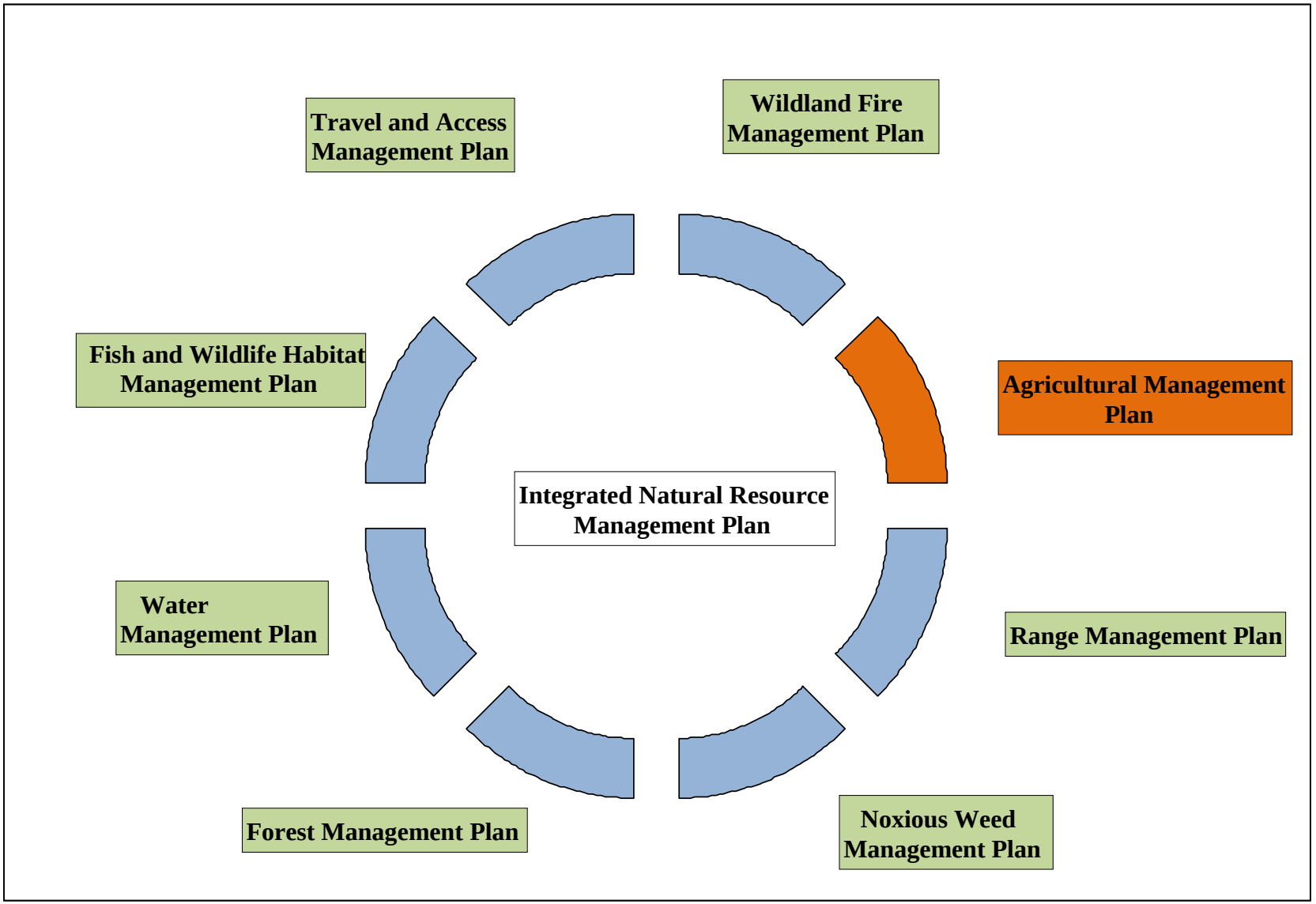
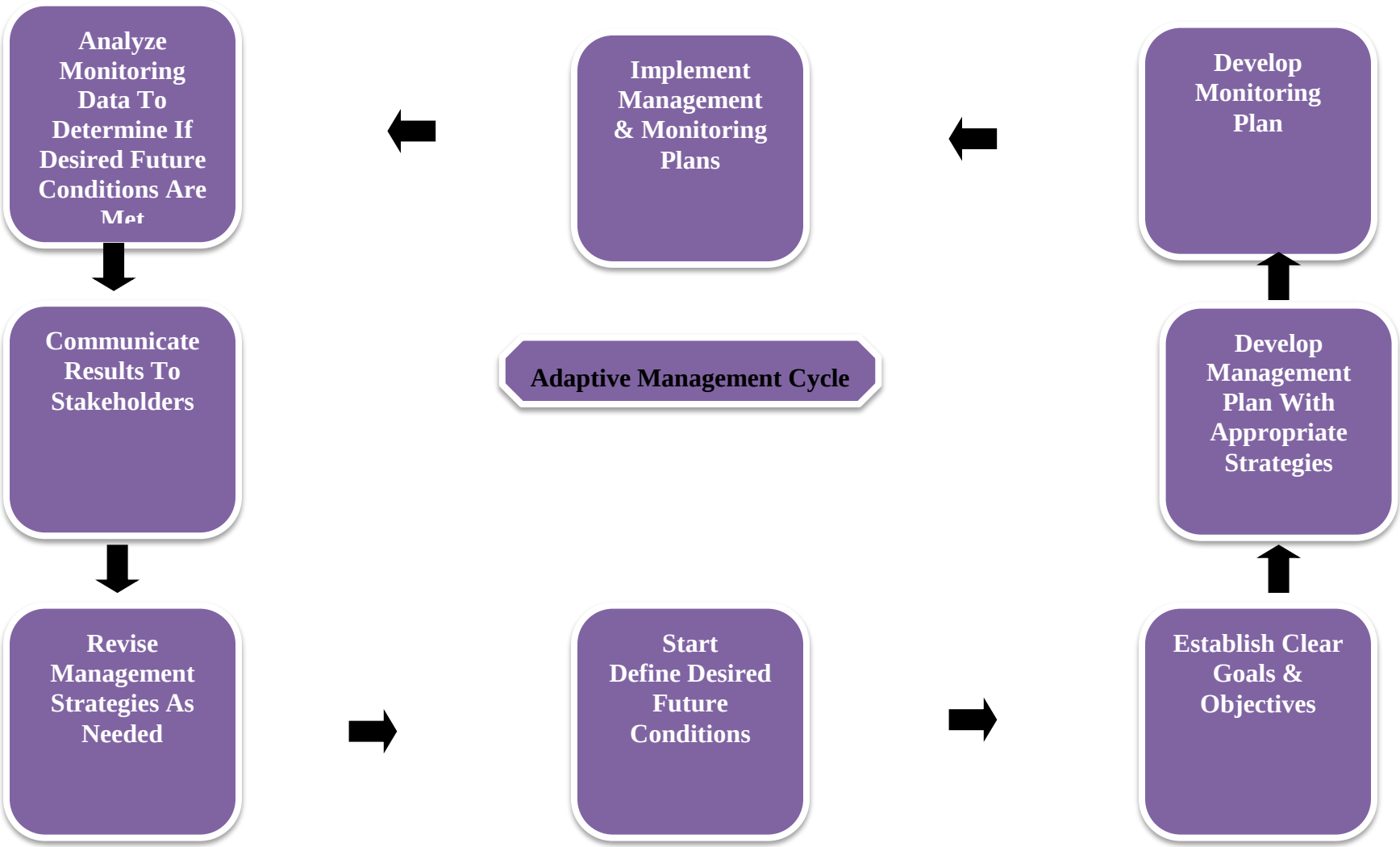


Figure 1-2. Agricultural Management Plan Adaptive Management Cycle



Revision Timeframe

The Agricultural Management Plan may remain in effect until found to be inconsistent with Tribal goals, agricultural management policy, or the conditions of the resource. Such a finding may be made in a formal review of the Agricultural Management Plan which shall occur no less than once every 10 years. More frequent reviews may occur as necessary. These reviews may accompany data gathering/analysis.

Future modeling of the anticipated effects of management strategies may become necessary as natural resource or market conditions change. Changes in the conditions of natural resources, in relation to desired future conditions, provide the essential information for effective adaptive management.

The Agricultural Management Plan may be amended at any time by resolution of the Board of Trustees of the CTUIR and approval by the BIA. Revisions to the Agricultural Management Plan may take the following forms:

- Technical clarifications to fix or edit wording in order to clarify concepts. Such clarifications will be documented in a memo on file with the DNR Director and the BIA.

- Revisions to modify and/or add issues to be addressed or modify/add goals and objectives to be achieved. Revisions would not normally involve changes in management strategies. Either the Board of Trustees of the CTUIR or the BIA may request revisions to the Agricultural Management Plan. The Interdisciplinary Team for the Agricultural Management Plan should evaluate the effectiveness of the Agricultural Management Plan at least once every 10 years.

- Amendments to recognize new information, or changes in resource conditions, that will necessitate changing management strategies. These amendments will be adopted by resolution of the Board of Trustees of the CTUIR and approval of the BIA.

The plan identifies a mandatory review at (10) ten years from signature. Voluntary application of installing buffers provides the trigger for changing the regulatory frame work of the plan. Chapter 4, Implementation of the Agricultural Management Plan outlines targets and actions associated with implementing stream buffers in the agricultural zone. The decision to change regulatory activities hinges on the amount, both in miles of stream buffered and acreage buffered, to determine whether continuation of the plan or applying additional regulatory mechanisms to insure enhancement of water quality from non-point source pollution is necessary.

Chapter II - The Management Situation

Background Information

The UIR, established by the Treaty of June 9, 1855, 12 Stat. 945, between the United States and the Cayuse, Umatilla and Walla Walla Tribes lies along the foothills of the Blue Mountains in northeastern Oregon immediately east of Pendleton (Figure 2-1). The UIR covers a variety of terrain and land uses including rough uneven forests and rangelands, gently sloping agricultural fields, and long narrow floodplains supporting dense riparian vegetation.

Fishing and hunting, as well as the gathering of roots and berries, are deeply rooted within the Tribal social structure. The harvesting, processing, manufacturing and marketing of farm, forest, livestock, and mineral products provide income to landowners and the Tribes. Together with the Wildhorse Casino and Resort, use of natural resources form the foundation of the economy of the UIR at the present time. The CTUIR anticipate continued development of the Coyote Business Park will further diversify the economy of the UIR in the future.

Description of the Umatilla Indian Reservation

Reservation Setting and Land Ownership Profile

The UIR encompasses 236 square miles. The Blue Mountains bound the Reservation and drain into the Columbia Basin to the west. Rolling farm and pasture land at the lower elevations, scored by the Umatilla River, rise to the foothills and then to steep canyons and timbered mountains. Soil types and terrain vary widely.

The Slater Allotment Act of 1885 reduced the original 245,699 acres of the UIR to 157,982 acres. 17,152 acres within the original 1855 reservation boundary, referred to as the *Johnson Creek Restoration Area*, was restored to the UIR through a special act of Congress in 1939. The Tribe also maintains land in SE Washington (Rainwater) and along the Columbia River in NE Oregon (Wanaket) through purchases with Bonneville Power Administration mitigation funds.

Today, the land ownership pattern on the UIR is a checkerboard of parcels falling into three main classes:

1. Deeded land held in fee simple estate by non-Indians, Indians or the CTUIR

2. Tribal Trust land with legal title held by the United States, and the beneficial or equitable title held by the CTUIR as a unit.

3. Allotted Trust land with legal title held by the United States and the beneficial or equitable title held by an individual Indian landowner(s) or his or her heirs (Table 1).

Leasing of agricultural land on the Reservation has been a common arrangement between non-Indian farmers and ranchers and Indian landowners for over 100 years. The 1891 Amendment to the General Allotment Act officially sanctioned leasing of farming and grazing lands “Subject to

the Approval of the Secretary of Interior." To this day, leasing is an acceptable arrangement for the majority of Indian landowners and operators, although the Tribal Farm Enterprise has grown its farming base to nearly 5500 acres is recent years.

As discussed, the responsibility for this leasing between beneficiaries and famers lies with the CTUIR-DECD Land Program. The CTUIR-DECD Land Program initiates the leasing process between all parties after they receive a negotiation form containing the terms agreed upon by the prospective lessee and the Indian landowners. Allotted land is subject of an appraisal to determine "Fair Annual Rental" (FAR). If the negotiation meets the FAR, The leasing staff then generates a farming lease. This branch, in essence, serves as an intermediary between lessor and lessee. The above describes a negotiated lease, but there are circumstances that require the agency to solicit bids by advertising farm tracts for lease. Advertised bidding for leases has increased due to the obstacles associated with the highly fractioned heir ship. Highly fractionated allotments has resulted in the inability to locate owners and the inability of owners to agree on the terms of a lease within a specified period.

Table 2-1: Acreage by Ownership Class on the Umatilla Indian Reservation

Land Within The Diminished Boundary	*Acres*
Tribal Trust Land	21,561
Tribal Fee Land	24,274
Allotted Trust Land	64,112
Deeded to Non-Indians	66,098
Tribal Trust Land (Johnson Creek Restoration & Wanaket)	*17,152*
GRAND TOTAL:	**190,185**

The Agriculture Resource

The majority of land on the Reservation is in agricultural or livestock production. The 2007 Census of Agriculture states that 33 farms were operated by American Indians or Alaska Natives on the UIR. The farms included 14,564 acres with an average size of 441 acres. The average agricultural products sold were $24,077 per farm. The census representation must consider the various farm numbers assigned to CTUIR and its members as there is no common knowledge of this amount of Tribal farmers.

It should be mentioned that the farming community has come a long ways in enhancing the agricultural environment. Cultivation of the Columbia Plateau, a mixed Mediterranean/frozen soil region, began as early as 1880's. The semi-arid region is characterized by very fertile, highly erodible silt loam soils, developed on steep slopes over Miocene basalts. Modern farming practices have reduced or eliminated tillage, properly gauged fertilizer application and enhanced yields. Between 1997 and 2007, reduced tillage farming increased from nothing to over 50,000 acres on the lower Columbia basin. Reducing or eliminating tillage has led to dramatic reductions in soil erosion and increases soil moisture. Since 1995, the Agricultural Research Service has evaluated hydrological and soil erosion research and its influence on infield

processes, channel disturbance and development, sediment transport, and stream water quality. Maintaining soil organic matter in place has led to increased fertility and enhanced carbon sequestration. Soil testing for development of fertilizer rates has not only aided the farming community's bottom line but led to reductions in excess pollutants entering streams.

Early farming practices led to excessive soil loss. Sixty years of soil and water conservation efforts have slowed soil loss from traditional farming and new technology promises to provide nearly additional soil and water conservation.

Landscape

The Reservation can be broken out into four broad physiographic subdivisions: the *Pendleton Plains,* the *Blue Mountain Slope*, the *Blue Mountain Uplands,* and the *Stream Bottomlands.* These subdivisions or landforms display distinct variations in slope, soils, and vegetation and have a strong influence on agricultural use. The Reservations' most productive farmland is located on the Pendleton Plains. The majority of the grazing subsequently occurs on the grassy Blue Mountain Slope and in the Blue Mountain Uplands with some grazing on the Pendleton Plains. (Gonthier and Harris, 1977)

Climate

The climate of the Reservation is semi-arid, but partially influenced by maritime winds from the Pacific Ocean. The frost-free season varies from 185 days on the western edge of the Reservation to 120 days in the northeast corner. Most of the precipitation occurs during the winter months as rain, with limited duration of snow cover in most years. The region is best suited for winter cereal production because of the lack of adequate precipitation from June to August. Water erosion can be substantial due to the sloping topography and lack of adequate crop cover during winter months. Rain or snow on frozen soil occasionally causes severe erosion events. The precipitation that occurs during the summer months comes in the form of violent, summer downpours. Because 45% or less of the precipitation occurs during the growing season, it must be stored in the soil to benefit crop production. This condition is the basis for the wheat/fallow systems widely used in the arid areas in Eastern Oregon. On the south Reservation, where soils are shallow, the yields are significantly lower because of the low amount of moisture that can be stored.

Overall, the climate and other natural influences of this region provide an environment with the potential for high crop production. The area generally receives adequate winter precipitation and has a near optimum growing season for winter crops. Approximately 80-90% of the lower landscapes of the Reservation are farmed. Winter temperatures, at the lower elevations, are not generally detrimental, as snow cover does not exist for extended periods. Precipitation is the main variable when considering crop rotations.

The entire UIR falls within Oregon's North Central Climatic Zone (Zone 6) (Johnson and Clausnitzer 1992). Weather is predominately influenced by Pacific Ocean air masses. The major influence to the regional climate is the Cascade Mountains which form a barrier against

warm moist fronts from the Pacific Ocean (Johnson and Clausnitzer 1992). The Columbia Gorge provides a break in the curtain of the Cascade Mountains and occasionally allows moisture laden marine air to penetrate into the northern Blue Mountains. This climate is called temperate oceanic and differs significantly from temperate continental. During the winter, the temperate oceanic climate has greater cloudiness, increased precipitation, and higher relative humidity, with less fluctuation in temperatures.

The UIR experiences strong seasonal fluctuations in both temperature and precipitation. During summer, the UIR experiences a continental climate with warm days, cool nights and little precipitation. Winters exhibit short periods of extreme cold intermixed with milder temperatures. Heavy fog with visibility less than 1,200 feet is very common during the winter months along the valley bottoms when high pressure conditions are present. Precipitation also changes dramatically with the seasons, with most precipitation occurring during the fall, winter, and spring. The climate of the UIR is also strongly influenced by elevation. Precipitation falls mainly as rain at lower elevations. Average annual precipitation is markedly higher at higher elevations in the Blue Mountains with much of this occurring as snowfall (Johnson and Clausnitzer 1992).

Weather records obtained from the National Oceanic and Atmospheric Administration (NOAA) stations at Pendleton and Meacham reflect the elevation change between the western and eastern portions of the UIR. The Pendleton station is located at 1,482 feet and the Meacham station is located at 4,050 feet. Mean annual temperatures for Pendleton and Meacham are 52.3º Fahrenheit (F) and 43.7º F, respectively (30-year period of record). Mean precipitation levels are 12.2 inches and 32.7 inches at the Pendleton and Meacham stations, respectively.

Topography

Landscapes are readily discernible because each displays marked differences in slope, soils, and vegetation that have a direct relationship with land uses. As stated above, the *Pendleton Plains*, the *Blue Mountain Slope*, the *Blue Mountain Uplands*, and the S*tream Bottomlands* make up the four broad physiographic subdivisions on the reservation. The Pendleton Plains are a slightly dissected plateau characterized by gently rolling slopes favorable to crop production and found between 1,200-2,000 feet above Mean sea level (Msl). The Blue Mountain Slope, located between 2,000-3,000 feet Msl, is a series of steep walled canyons ascending to the more plateau-like Blue Mountain Uplands. The Blue Mountain Uplands are a region of meadows and forested land. Approximately one-third of the UIR is within this subdivision with elevations ranging from 3,000 feet Msl to approximately 4,100 feet Msl. The Stream Bottomlands are principally those of the Umatilla River, McKay Creek, and Patawa Creek that dissect other topographic units. Very flat flood plains edged by moderate to steep slopes up to the surrounding land distinguish them from surrounding areas (BIA Weed EA, 2000).

Figure 2-1. Landforms of the Umatilla Indian Reservation.

Pendleton Plains

Blue Mountain Slope

Blue Mountain Uplands

Stream Bottomlands

Soils

Characteristics of the soils on the Reservation vary with climate, topographic, and geologic features of the region. Soils on the UIR grouped into four categories corresponding to the landforms are as follows: The stream bottomlands exhibit mainly the Hermiston, Onyx, Snow, and Yakima series. The Hermiston, Onyx, and Snow series are excellent deep agricultural soils.

The Yakima soils, on the other hand, are excessively drained and too gravelly to cultivate and are best suited to irrigated pasture or alfalfa. About one-half of the bottomlands have Yakima soils. There are also some wet and poorly drained soils of the Pedigo and Stanfield series. The Stanfield soils are salt affected and have a hardpan.

The Pendleton Plains soils, considered the best agricultural soils on the Reservation, formed from windborne loess deposited on top of Columbia River basalt. The Pendleton Plains soil are typically deeper on the North Reservation, than when they occur on the South Reservation. The best of these soils are the thick loess of the North Reservation, the Walla Walla, Athena, and Palouse soils that form bands of increased darkness and fertility from west to east with increased precipitation. The Pilot Rock and McKay series of the south Reservation are less productive because they are both shallower with the McKay series exhibiting poor drainage.

The Blue Mountain Slope, the ramp-like landform increasing in elevation from the Pendleton Plains to the Blue Mountain uplands, has soils Waha and Palouse, that are the dark and fine textured. Farming occurs on the Waha and Palouse soils where depth and slope are not limiting.

The Blue Mountain Uplands, at elevations from 3,000-4,100 ft. Msl have predominately non-arable soils. The arable soils that are present are of the Thatuna and Couse series. These soils are deep and fine textured, with the Couse soils under the majority of the forest and rangeland. The restrictive element associated with this area is the short growing season.

The UIR has several soils classified as “prime farmland soils” if irrigation is applied. These soils are threatened by urban and industrial uses because of their moderate slopes. This loss of prime farmland increases pressure on lands less suitable for farming.

The structural deformation of thousands of feet of Miocene basalt and its subsequent erosion created the varied topography of the Blue Mountains. Soils are a product of basalt weathering, silt size particles deposited by wind, and volcanic ash. The soils of south-facing uplands typically consist of loamy skeletal mixed mesic Lithic Argixerolls that are shallow and well drained. Volcanic ash originally deposited on steep north-facing (leeward) slopes has since been eroded. The soils formed in colluvium, residuum, and loess consist of Pachic Ultic Haploxerolls that are moderately deep and well drained. Soils on plateaus that may be moderately deep, or deep and well drained, consist of Typic Vitrandepts formed in volcanic ash, loess, and residuum. Other soils that are moderately deep or deep consist of Ultic Argixerolls that have not been greatly influenced by windblown ash or loess. These soils formed mainly in material weathered from basalt and colluvium (Johnson and Makinson 1988).

Slope

Slope is the inclination of the land surface from the horizontal. Slope dictates to a large degree the land use for a particular area. If the slope is great enough, special practices are required to ensure satisfactory performance of the soil for specific use. Slope falls into four classes: 0-3%, 3-12%, 12-20%, and greater than 20%. The 3-12% category encompasses the majority of acreage on the Reservation involve in crop production.

First Foods

The Confederated Tribes of the Umatilla Indian Reservation's (CTUIR) Department of Natural Resources (DNR) has adopted a mission based on "First Foods" ritualistically served in a tribal meal. DNR seeks to utilize the First Foods to bring attention to ecological processes that may be devalued outside of Tribal culture and to prioritize efforts to re-naturalize those processes that sustain First Foods.

The agricultural land base includes resources that are heavily dependent on production of First Foods. Water flows throughout agricultural lands and highly productive soils produce vegetation that the Confederated Tribes rely on for First Foods. Herbaceous vegetation produces nutrients important to resident and wintering herds of elk and deer as well as a variety of birds and insects that make up the food chain in the region. The CTUIR's iconic salmon is dependent on quality and quantity of water originating in the Blue Mountain uplands.

It is assumed chemicals annually applied to commercially produced crops and naturalized plantings to enhance production and planting success throughout the agricultural lands have demonstrated negative impacts to water, and consumed crops. Landowners are dependent on crop production and subsidies for foregoing crop production by applying conservation measures (CRP) paid for by the United States Department of Agriculture (USDA). Better information is needed about chemical inputs to land and their impacts to food production, water quality, and water quantity. Therefore, each farming lease now contains requirements for reporting land inputs and operations. Proper management is dependent on understanding of land use and impacts associated with application of land management inputs for the desired results.

Soil Quality and Erosion

There are 26,976 trust acres leased for agricultural crop production on the reservation. Approximately 85-90 percent of operators are practicing conservation tillage to reduce soil erosion and improve soil health. Conservation tillage is defined as any tillage system that leaves at least 30 percent of the surface covered by plant residues for control of erosion by water; for controlling erosion by wind, it means leaving at least 1120 kg/ha (1000 lb/ac) of small-grain-straw-equivalent during the critical wind erosion period. The NRCS has evaluated all of the HEL land and designed a "conservation plan" for the specific soils and slopes associated with a specific FSA Tract. The amount of residue needed varies depending on the type and structure of the residue.

Local research shows in a wheat fallow rotation with conventional tillage 35 to 40 percent of soil organic matter was lost in 60 years of cultivation. Residue management treatment plots having high levels of soil organic matter demonstrate water intake rates to be three (3) times greater than treatment plots with low levels of soil organic matter. Soil compaction was least under management practices that returned high levels of crop residue to the soil. Over time, soil organic matter continues to decline in a wheat/fallow rotation under conventional tillage. Greater amounts of added nitrogen are necessary to achieve optimum yield because soil nitrogen availability has correspondingly declined. Nitrogen fertilizers have led to a decrease in soil pH

to as low as 5.2. Lime may be required within 15 years. (Pendleton Agricultural Research Center 1931-1989)

High quality agricultural soil can be directly associated with organic matter, in which the majority is found in the top soil. Organic matter consists of microorganisms, plant litter, and the remains of organisms, which once occupied the soil. As organic matter decomposes, its nutrients become available to growing plants. Organic matter provides many of the needed attributes of soil quality. Soil organic matter acts as a storehouse for nutrients, reduces the effects of compaction, builds soil structure, and increases the infiltration rate of water. Organics serve as a buffer against rapid changes in pH and serve as an energy source for soil micro-fauna.

The USDA Farm Service Agency (FSA) has enrolled 4,699 acres of previously farmed agricultural land on the reservation into the Conservation Reserve Program (CRP). The CRP implements herbaceous plantings ideal for wildlife habitat, water quality, reduced erosion, and cleaner air on former cropland that was previously too difficult to farm (topography, soils, and location) or lying idle. Land eligible for CRP must have been planted to an agricultural commodity crop four of the previous six years. Upon completion of the 10-year cycle, the field may be renewed, at the discretion of the FSA, to CRP or returned to agricultural production. The operator and landowner(s) split the CRP payments.

Streamside soil loss is a concern addressed in this plan. Currently agricultural fields bordering streams increase the risk of sloughing soil into waterways, flooding, and reduced water quality. Implementation of conservation buffers will provide stable stream banks, cleaner water, enhanced wildlife populations, cropland protection, enhanced aesthetics and recreation, and sustainable landscapes. Currently the Conservation Reserve Enhancement Program (CREP), the Environmental Quality Incentives Program (EQIP), and Continuous Conservation Reserve Program (CCRP) are federal programs implemented on the Reservation to provide financial benefits for buffer implementation along waterways.

Water Quality

Water quality on the UIR is dependent upon both surface and groundwater sources. The Umatilla River and its tributaries drain the diminished reservation. The river rises in the Blue Mountains, flows westerly across the reservation, and joins the Columbia River at Umatilla, Oregon. The main stem of the Umatilla effectively divides the reservation into almost equal northern and southern halves. Demands on the Reservation's surface water are not excessive. Wells are the principal source of domestic, commercial, and irrigation water. (USDOI BIA Weed EA, 2000)

The Federal Clean Water Act of 1972 has been the driving force in creating programs and laws to protect Tribal beneficial use of surface water on and off the reservation. The act mandated the development of the CTUIR TMDL to address pollutants entering surface water. In July 2005, the UIR developed a TMDL to address turbidity and temperature on water bodies throughout the Reservation. These two pollutants, as stated by the TMDL, are supported by ample data showing that water quality parameters are not being met. The Umatilla River, Meacham Creek, Tutuilla Creek, and other tributaries are generally too warm in mid and late summer while the Umatilla

River and Mission Creek exceed water quality standards for turbidity – a result of too much fine sediment eroding from stream channels and moving off adjacent lands into the stream. (CTUIR TMDL, 2004) Table 3 lists the water quality limited streams in the Range Resource Areas as of 2003 and explains each stream's listed parameter.

The Board of Trustees adopted water quality standards to provide a mechanism for managing and regulating the quality and uses of waters of the Reservation by establishing water quality goals for specific water bodies, and providing a legal basis for regulatory controls. The exercise of this governmental function is critical to the Tribes' self-governing principles.

Purposes of the water quality standards are to maintain or restore the chemical, physical, biological conditions, and cultural integrity of the surface waters of the Reservation for the Tribes, its people and residents of the Reservation. The Tribes plan to achieve a level of water quality that provides for the protection and propagation of fish and wildlife, for recreation in and on the water, and for all existing and designated beneficial uses of the water. The Tribes will promote a holistic watershed approach to management of the surface waters of the Reservation and will protect cultural and spiritual uses of water and threatened and endangered species. (CTUIR WQS, 2004)

Table 2-2: CTUIR List of Water Quality Limited Streams

Water Name and Description	Water Quality Parameter
Buckaroo Creek – Mouth to River Mile (RM) 4.75	Temperature
Isqúulktpe Creek – Mouth to headwaters	Temperature
Meacham Creek – Mouth to RM 13.0 at Reservation Boundary	Temperature
Mission Creek – Mouth to headwaters	Turbidity
North Fork McKay Creek – Mouth to headwaters	Temperature
Spring Hollow Creek (tributary to Wildhorse Creek) – Mouth to headwaters	Temperature
Umatilla River – West Reservation boundary to east Reservation boundary	Temperature
Umatilla River – West Reservation boundary to Mission Creek	Turbidity
Wildhorse Creek – Mouth to RM 26	Temperature

(CTUIR Integrated Report 303(d) list.

Wildlife and Fish Habitat

Agricultural, range, and forest ecosystems of the UIR support a wide variety of wildlife species. Three hundred and seventy nine species of vertebrate animals may be present in the Blue Mountains including 10 amphibians, 16 reptiles, 89 mammals, and 365 birds. Fifty-one of the

birds are found during migration or are accidental in the area. More detailed species descriptions are found in Wildlife Habitats in Managed Forests – The Blue Mountains of Oregon and Washington (Thomas et al., 1979).

Numbers of large ungulates utilizing the UIR during the winter months depend on the severity of the winter. Rocky Mountain elk (*Cervus elphaus*), mule deer (*Odocoileus hemonius*), and white-tailed deer (*Odocoileus virginianus*) are integral to the culture of the Tribes, providing subsistence for many Tribal members. The UIR provides winter range for one of the largest elk herds in the country. These elk use the forest and range habitats of the UIR and during severe winters can cause conflicts with agriculture as they forage on winter crops.

The agricultural zone of the UIR consists of a mosaic of cover and non-cover habitats. Non-cover habitats include annual cropping systems where little or no vegetative cover exists during summer fallow. These lands provide little or no benefit to wildlife while in this status. These areas typically exclude burrowing animals due to ground disturbance from tillage and the lack of cover increases the exposure of predation for other animals.

Riparian areas, un-tilled wetlands, fencerows, road and irrigation ditches, un-tilled right-of-ways, idle lands, pasturelands, and land enrolled in CRP provide cover habitats in the agriculture zone. Food crops in areas under annual tillage can provide forage and cover for wildlife during the growing season. However, grazing by wild ungulates and Canada geese (*Branta Canadensis*) can impact crop production and is a source of conflict between agricultural and wildlife conservation interests.

Habitat types found in the agricultural zone of the UIR as defined by the Northwest Habitat Institutes' Interactive Biodiversity Information System (2003), may include: interior grasslands; herbaceous wetlands; interior riparian-wetlands; open water (lakes, rivers, ponds and reservoirs); agricultural pasture and mixed environs; mixed conifer forest; ponderosa pine dominate; and shrub-steppe.

The upper Umatilla River Watershed within UIR Boundaries supports numerous resident fish species, including portions of the Columbia River population of bull trout (*Salvelinus confuentus*), currently listed as threatened under the Federal Endangered Species Act (ESA). Other resident fish species present within UIR Boundaries include rainbow trout (*Oncorhynchus mykiss*), mountain whitefish (*Prosopium williamsoni*), Pacific lamprey (*Lampetra tridentate*), and various non-game species (a more conclusive list can be viewed in the Umatilla Sub-basin/Willow Creek Sub-basin Summary). Anadromous salmonids that occur on the UIR include summer steelhead (*oncorhynchus mykiss*), coho salmon (*Oncorhynchus kisutch*), and spring and fall Chinook salmon (*Oncorhynchus tshawytscha*). Hatchery reared wild endemic brood stock (prevents domestication) supplement populations of the mid-Columbia Evolutionary Significant Unit of wild summer steelhead, currently listed as threatened under the ESA. Coho and Chinook salmon were extirpated in the early 1900's, shortly after construction of Three Mile Dam, an irrigation diversion located in the lower Umatilla River. After an approximated 75-year absence, these species were re-introduced and supplementation has occurred in conjunction with actions designed to reconstruct irrigation diversion and augment in stream flows in the lower basin.

Several species of Pacific salmon are significant to the local area from the perspective of their use by humans. Chinook salmon, Coho salmon, and Steelhead trout provide opportunities for recreational and consumptive harvest that is important to the local area from both a cultural/social and economic standpoint. Agricultural activities threatened both Coho and Chinook salmon runs to the point of extinction in the Umatilla/Willow sub-basin; currently, reintroduction of both species is underway and runs are now adequate to support annual consumptive sport fisheries (Draft Umatilla/Willow Sub-basin Plan, 2004). Bull Trout fishing is open to Tribal members on the Reservation and ceded lands, but closed to non-Tribal members. Some Bull trout are taken, but most are caught and released (Draft Revised Bull Trout Recovery Plan, 2002)

Historically Bull Trout occurred throughout the Columbia Basin, today they are found primarily in upper tributary streams and several lake and reservoir systems within the US (USFWS, 1998). Threats to long-term Bull Trout persistence include dams, forest management practices, roads, agricultural practices, grazing and nonnative species. The north and south fork Umatilla River and Meacham Creek contain the most current and potential Bull Trout spawning and rearing habitat. (Draft Revised Bull Trout Recovery Plan, 2002)

The CTUIR Department of Natural Resources' (DNR) Programs have enhanced approximately 10 river miles of anadromous salmonid habitat and one mile of resident fisheries habitat on the UIR since 1988. Approximately 1.4 river miles of these habitat improvements lie within the UIR Agricultural Management Zone. More specifically, these enhancements are located on Mission Creek, the upper McKay Creek, and lower Spring Hollow Creek, a tributary to Wildhorse Creek. Mission Creek supports populations of steelhead and coho salmon. Both upper McKay creek and Spring Hollow Creek do not currently support anadromous fish, but contain resident fish populations. Enhancements in these three drainages have included treatment of noxious weeds, plantings of native riparian vegetation, in stream structural enhancements (check dams and passage improvements) and construction of riparian livestock exclusion fencing. The installation of passage improvements has occurred on the lower Mission Creek, Moonshine Creek, and Cottonweed Creek. There is currently development for watershed scale restoration and management plans occurring in the Patawa / Tutuilla Creek Drainages. Additional habitat recovery and protection efforts are necessary within the Agriculture Management Zone to increase fish survival and improve natural production capabilities.

Table 2-3. Estimated Adult And Jack Spring Chinook Returns To The Umatilla River Mouth And Spawning Data 1988-2007.

Year	Spring Chinook	
	Returns	Redds
1988	13	0
1989	164	14
1990	2,190	289
1991	1,330	144
1992	464	59
1993	1,221	224
1994	271	74
1995	470	90
1996	2,273	347
1997	2,196	288
1998	429	60
1999	1,974	292
2000	4,784	721
2001	5,030	626
2002	5,885	828
2003	4,320	354
2004	3,560	534
2005	2,528	335
2006	5,306	371
2007	3,554	381

Table 2-4. Estimated Adult And Jack Fall Chinook Returns To The Umatilla River Mouth And Spawning Data 1988-2007.

Year	Fall Chinook	
	Returns	Redds/[1]
1988	258	NC
1989	526	92
1990	440	50
1991	990	18
1992	274	0
1993	407	0
1994	932	7
1995	906	1
1996	741	1
1997	655	22
1998	460	24
1999	886	25
2000	1,125	165
2001	2,365	NC
2002	2,382	NC
2003	2,181	NC
2004	4,127	NC
2005	3,132	NC
2006	2,696	NC
2007	3,553	NC

/[1] Fall Chinook And Coho Spawning Occurs At The Same Time; Redd Counts Are Partial And Are Unidentified As Per Species

NC = No Counts Made

Table 2-5. Estimated Adult and Jack Coho Salmon Returns to the Umatilla River Mouth and Spawning Data 1988-2007

Year	Coho	
	Returns	Redds/[1]
1988	0	NC
1989	0	92
1990	0	50
1991	0	18
1992	334	0
1993	1,602	0
1994	1,079	7
1995	1,047	1
1996	737	1
1997	978	22
1998	3,362	24
1999	3,517	25
2000	6,121	165
2001	23,334	NC
2002	5,115	NC
2003	9,715	NC
2004	9,106	NC
2005	5,381	NC
2006	7,770	NC
2007	5,290	NC

/[1] Fall Chinook and Coho Spawning Occurs at the Same Time; Redd Counts Are Partial and Are Unidentified As Per Species

NC No Counts Made

Table 2-6. Estimated Adult And Jack Summer Steelhead Returns To The Umatilla River Mouth And Spawning Data 1988-2007

Year	Summer Steelhead	
	Returns/[2]	Redds/[3]
1988	2,480	138
1989	2,474	77
1990	1,667	HW
1991	1,111	HW
1992	2,769	135
1993	1,914	HW
1994	1,304	64
1995	1,571	74
1996	2,116	119
1997	2,543	138
1998	1,854	126
1999	1,939	218
2000	2,966	238
2001	3,749	382
2002	5,663	347
2003	3,194	322
2004	3,455	208
2005	2,532	218
2006	1,977	50
2007	3,571	314
/[2] Second year of run-year is indicated (e.g. 2007 entry is for fish returning in the 2006-2007 run year)		
/[3] HW = no counts conducted due to high water		

Poor land use practices within the Riparian Management Zone have reduced riparian vegetation, degraded water quality, and have likely diminished water table elevations and in stream flows. Lack of conservation farming practices such as grassed waterways and failure to leave crop residue, maintain tilth and chisel stubble are common problems resulting in erosion of top soils into waterways during wet winter months. Field runoff of pesticides may affect stream water quality and potentially fish and other aquatic organisms in some of these areas. Past and current agricultural practices have further affected fish habitat by altering natural stream channel form and function. Loss of stream channel meander from channelization and diking has accelerated runoff velocity due to increases in surface gradient. Limited portions of stream reaches within the Agricultural Management Zone sustain year-round flows and provide acceptable fish habitat. Lack of perennial stream flows, insufficient riparian cover, and low numbers of in stream woody debris are the primary factors limiting anadromous fisheries production in these systems. Habitat surveys conducted in conjunction with biological inventories by the CTUIR Umatilla Basin Natural Production Monitoring and Evaluation Project during the mid-1990's specify habitat-limiting factors for each stream.

Air Quality

Pacific maritime air masses heavily influence the climate of the UIR, resulting in moist, mild winters, and dry, moderately warm summers. Topographical features modify microclimates especially during the winter months when temperature inversions result in low cloud and fog layers on the western and northern portions of the UIR. During periods of atmospheric stability, particulate levels can rise substantially with the use of wood stoves and field burning being the main contributors.

The Federal Clean Air Act of 1963, as amended, is the centerpiece of the present day system of air quality regulation at the local, state, and national levels. The act established National Ambient Air Quality Standards (NAAQS) that define specific levels of air quality necessary to protect public health and welfare. States and tribes as well as federal facilities and land managers are responsible for implementation of these regulations.

In August 2006, the UIR AQP received partial delegated authority to administer agricultural burn permits from the EPA. An operator within the reservation boundary wishing to perform an agricultural burn must apply for a permit through the Tribal Air Quality program. Following approval of the submitted application, the operator must notify the Tribal AQP of their intention to burn on the day of the burn to receive final permit approval to proceed.

Table 2-7. 2000 Air Emissions on The Umatilla Indian Reservation (Tons/Year).

Source	Total Particulate Matter(PM10 and PM2.5)	NH3	NOx	CO	HC	VOC	SOx
Field Burning	166	56	98	2830	-	229	20
Residential Woodstoves	9	-	1	65	-	15	<1
Pioneer Asphalt	24	-	39	99	-	39	39
Grain Elevator	5	-	-	-	-	-	-
Mobile Sources	56	-	1238	2203	309	-	-
Fugitive Dust	24,088	-	-	-	-	-	-
Railroad	50	-	2004	523	-	71	326
Fertilizer & Pesticide Applications		33	-	-	-	-	-
Total Estimated Emissions Tons/Year	24,398	89	3380	5720	309	354	385

Monitoring and Evaluation

The CTUIR has collected information on HEL, crop rotations, and weeds. Monitoring stubble residue provides an estimate of ground cover, in pounds per acre, which will help reduce wind and water erosion. This data has served as baseline information to be used to direct changes in farming practices and techniques. Residue level measurements taken on HEL every crop year demonstrate patterns of farming techniques and their impact on the land.

Annually the CTUIR-DNR Range, Agriculture and Forestry staff monitors crop rotations, crop health, and weed species present, ensuring compliance with leases put in place by the BIA for the landowners. The allotment files identify and document an inventory of noxious weeds present.

Weed Control

For this plan, there are three categories of weeds: potential, new, and established. Potential invaders are unidentified species within the UIR where invasion is imminent. New invaders are species in the early stages of invasion that have not yet spread to the point where resource and economic damage is occurring, but the potential for damage is high. Established species are species that have spread to the point that they have naturalized and are causing an unacceptable level of resource damage.

Lessees are responsible for managing weed control on their leased trust land. They may use herbicides to control weeds in fallow and cropped fields. Diverse populations of native plants and minimal management in CRP plantings have reduced weed infestations. Outcroppings of noxious weeds are still present, and can cause potential problems for neighboring farmers.

Idle lands are a haven for weeds such as rush skeletonweed (Chondrilla juncea), knapweeds (Centaura species), cheatgrass (Bromus tectorum), medusahead (Taeniatherum caput-medusae), thistles (Cirsium, & Centaura), field bindweed (Convolvulus arvensis) cereal rye (Secale cereale) tumble mustard (Sisymbrium altissimum) kochia (Koshia scoparia) and other species. The absence of a lease, little monitoring, and no management allow the establishment and proliferation of these weeds.

A survey of the UIR during the summer of 1998 revealed an infestation of diffuse knapweed (*Centuarea diffusa*), Russian knapweed (*Centaurea repens*), and yellow starthistle (*Centaurea solsititialis*) was greater than previously thought. These three select weeds spread across 3,375 acres of which 1,881 acres are trust lands and other noxious weeds infested an additional 1,536 acres. Further surveys in 2001 and 2007 discovered garlic mustard (*Alliaria petiolata)* in the Tutuilla/Patawa drainages. Garlic mustard presents challenges for control as plants tend to grow in the understory of shrub and tree species making detection and control difficult. With additional surveys, the CTUIR anticipates locating additional infestations of noxious weeds.

With an emphasis on identifying noxious weeds, CTUIR staff have not yet completed a detailed survey for all weeds on the UIR. In terms of existing and/or potential vectors, the most obvious and well-understood examples are transportation networks (rail and road systems), recreational corridors, and wildlife travel corridors. While site-specific surveys are needed on the UIR, it

seems reasonable to assume that the quality of agriculture production will likely be adversely affected by such infestations.

All agricultural leases on trust land have specific language in the Soil Conservation and Crop Rotation Plan, attached to and made part of the lease, addressing weed control on leased land. Section 3 General Management, in 3.04 Weed Control, lists specific monetary damages for non-compliance.

County noxious weed funding on Right of Ways (ROW) is not sufficient and the ROWs on the UIR are not a priority because of the expansive road system the county is responsible for outside of the boundary.

Limited resources are available to undertake this massive problem, for example jurisdiction of weed control on fee land is limited, there is little funding for weed control on trust lands, and the Umatilla County Weed Ordinance is minimally enforced, on fee status land, throughout the UIR. Promotion of the Umatilla County Weed Ordinance has been one of the ideas to begin to address the problem.

Idle lands

Idle lands on the Reservation are causing a multitude of problems including lost income/revenues, loss of production acres, increasing weed concentrations, and degrading soil and water quality. In 2007, the UIR had 2,996.64 total acres of idle farming allotments. These idle lands have increased due to cost of crop production, market volatility, increasing chemical and fertilizer costs and access.

Options for the utilization of idle lands include perennial grass plantings, inclusion into range units, and/or leasing the allotments as pasture. As stated in the standards and guidelines, a list of tracts that are in danger of falling idle or abandoned will be available on a yearly basis. The CTUIR can then begin the process of incorporating the tracts into one of the options for utilization.

Idle or abandoned agricultural lands result in lower land values, reduced income to landowners, and decreased natural resource values. The Agricultural Management Plan must address this problem to prevent more agricultural lands from becoming idle and to develop a strategy to return idle lands to suitable land uses. Currently there are an estimated 2700 acres or about 86 farmable allotments that appear to be idle with decreased natural resource, economic, and social values.

The goal of the Tribe is to keep all trust lands in suitable land uses for the benefit of the landowners and the Tribe. The objective is to provide measures to assist landowners or operators to keep land in or return land to suitable, productive land uses and to provide access to assistance and programs that help landowners manage their agricultural land. The idling or abandonment of agricultural lands, with resulting undesirable plant communities, is not an acceptable option to the Tribe.

Problems associated with idle lands include undesirable vegetation/weed infestations that decrease land productivity for raising crops, forage, wildlife habitat, decreased water quality, increased soil erosion causing damage to roads and home sites, decreased income for landowners, and decreased return on Tribal investments to the community.

Threatened and Endangered Species

Twenty six species of fish and wildlife that are listed as either threatened, endangered, or sensitive (either federally or state) are associated with the agricultural lands known to occur within the UIR (Table 8). NOAA-Fisheries defines an Evolutionarily Significant Unit (ESU) as an anadromous fish population, or group of populations, that is substantially reproductively isolated from other conspecific populations and that represents an important component of the evolutionary legacy of the species. NOAA-Fisheries has designated two ESU's of summer steelhead associated with the UIR as threatened: Middle Columbia River ESU and Snake River Basin ESU. NOAA-Fisheries also designated one ESU of spring chinook associated with the UIR as threatened: Snake River Basin Spring/Summer Runs ESU. In 2005, NOAA-Fisheries designated critical habitat for these ESU's but specifically excluded Indian trust lands from these critical habitat delineations.

Table 2-8 Listed Species (US Fish and Wildlife Services, Oregon Department of Fish and Wildlife and NOAA National Marine Fisheries found to be present on the UIR include:

Species Name	Common Name	Status
Fish		
Salvelinus confluentus	Bull trout	Threatened
Oncorhynchus mykiss	Summer steelhead	Threatened
Oncorhynchus tshawytscha	Spring Chinook	Threatened
Cottus marginatus	Margined sculpin	Species of Concern
Lampetra tridentate	Pacific lamprey	Species of Concern
Amphibians		
Sceloporus graciousus graciosus	*Northern sagebrush lizard*	Species of Concern
Birds		
Accipiter gentilis	Northern goshawk	Species of Concern
Agelaius tricolor	Tricolored blackbird	Species of Concern
Dryocopus pileatus	Western burrowing owl	Species of Concern
Bartramia longicauda	Upland sandpiper	Species of Concern
Bureo regalis	Ferruginous hawk	Species of Concern
Contopus cooperi	Olive-sided flycatcher	Species of Concern
Empidonax traillii adastus	Willow flycatcher	Species of Concern
Icteria virens	Yellow breasted chat	Species of Concern
Oreortyx pictus	Mountain quail	Species of Concern

Species Name	Common Name	Status
Plcoides albolarvatus	White-headed woodpecker	Species of Concern
Melanerpes lewis	Lewis' woodpecker	Species of Concern
Mammals		
Antrozous pallidus	pallid bat	Species of Concern
Corynorhinus townsendii townsendii	Townsend's western big-eared bat	Species of Concern
Lasionycteris noctivagans	Silver haired bat	Species of Concern
Myotis cilioabrum	Small footed myotis bat	Species of Concern
Myotis volans	Long legged myotis bat	Species of Concern
Myotis yumanensis	Yuma myotis bat	Species of Concern
Sorex prebei	Preble's shrew	Species of Concern
Urocitellus washingtoni	Washington ground squirrel	Candidate Species
Myotis evotis	Long-eared myotis bat	Species of Concern
Plants		
Allium robinsonii	Robinson's onion	Species of Concern
Astragalus collinus var. laurentii	Laurence's milk vetch	Species of Concern
Camissonia pygmaea	Dark evening primrose	Species of Concern
Trifolium douglasii	Douglas clover	Species of Concern
Myosurus sessilis	Sessile mousetail	Species of Concern

Status

Listed Species: An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future.

Candidate Species: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.

Species of Concern: Taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service (many previously known as Category 2 candidates), but for which further information is still needed. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing.

Endangered Species

Steelhead *(Oncorhynchus mykiss)*
Steelhead enter the Umatilla River from fall through spring during the high flow period. Spawning and rearing habitat includes several tributaries to the Umatilla River on the UIR particularly Meacham Creek, Isqúulktpe Creek, and Buckaroo Creek (Contor et. al., 1996). High summer water temperatures, lack of vegetation canopy cover, insufficient quantity of pools, and

lack of large woody debris, bank instability, and flashy stream flow characterize all of these streams. Land uses including timber harvest, roads, and livestock grazing have contributed to these habitat conditions.

Chinook salmon fall runs *(Oncorhynchus tshawytscha)*
Fall Chinook spend from two to six years in the ocean. Adults return to the Umatilla River from August through mid-December. Juveniles emerge from the gravel in April and sub-yearlings begin to out-migrate in May. Productivity of Fall Chinook in the sub-basin is very low, based on both female spawning escapement and the number of returning adults per spawner. Decreased productivity is attributed to increased sediment load, high water temperatures, and habitat loss mainly through loss of riparian vegetation. Occasionally, fall Chinook redds have been found farther upstream; in 1998 four redds were found in Buckaroo Creek and in 1999 fall Chinook redds were observed in the mainstem up to RM 67. (Draft Umatilla Willow Sub-basin Plan, 2004)

Chinook salmon spring/summer runs *(Oncorhynchus tshawytscha)* In 1986, Spring Chinook salmon were re-introduced into the sub-basin. This stock enters the Columbia River from the ocean from February through April. Entry into the Umatilla River begins in late March, peaks in May, and is mostly complete by the end of June. Spawning begins in early to mid-August, peaks in late August /early September, and ends in late September. Juveniles emerge from the gravel in January and February. Smolt outmigration from the sub-basin begins in March, peaks in late March through late April, and is generally complete by late May. Current Spring Chinook distribution is limited to the upper mainstem, the North Fork Umatilla, and Meacham Creek. The current spawning distribution is much smaller than the estimated historic distribution. Causes of this include increased sediment load, high water temperatures, and habitat loss mainly through loss of riparian vegetation. (Draft Umatilla Willow Sub-basin Plan, 2004)

Bull Trout (Salvelinus confluentus) Status: Threatened Cold-water habitat is especially significant for this species, spawning occurs on gravel riffles in small streams with a long in-gravel development period. Juveniles are closely associated with streambed, adults range more widely. Warming and de-watering of habitats resulting from land and water use practices confine populations to small cold headwater streams. Poor habitat conditions for this species limit distribution on the UIR.

Candidate Species

Washington ground squirrel *(Urocitellus washingtoni)* The Washington Ground Squirrel inhabits isolated grassland remnants of northern Gilliam, northern Morrow, and northwest Umatilla County. Areas occupied by the squirrels tend to have sandy and deep soils with a lower percentage of clay than found in unoccupied areas. All reported colonies are well west of the UIR (Marshall, 1996).

Species of Concern

Margined Sculpin *(Cottus marginatus)* Margined sculpins are fish typically less than three (3) inches in length and prefer deeper water of streams and rivers with low water velocity. These Sculpins are common in the Umatilla River System (Contor et. al., 1996).

Pacific Lamprey *(Lampetra tridentata)* Pacific lamprey is typically anadromous. Adults spawn in sandy gravel at the upstream edge of riffles in small streams. Ammocoetes (larval phase) burrow in mud where they filter feed for five to six years before transforming to the adult parasitic form and migrating downstream to the ocean. A remnant population of Pacific lamprey (10-15 adults each year) are known to occur in the Umatilla River above Three-Mile Dam (Close, 1999).

Northern Goshawk *(Accipter gentilis)* Northern goshawks typically inhabit mature forest types. Dense overhead foliage or a high degree of canopy cover created by tall trees is typical of nesting habitat. Goshawks forage beneath the forest canopy on a variety of birds and mammals. There are no known goshawk nests on the UIR.

Tri-colored Blackbird *(Agelaius tricolor)* The tri-colored blackbird generally prefers to breed in freshwater marshes with emergent vegetation or in thickets of willows or other shrubs. In Oregon, it has bred in tangles of Himalayan blackberry growing in and around wetlands. The blackbird eats mostly animals' food in the breeding season. It feed on a variety of seeds and waste grain following breeding. The location of colonies is unpredictable from year to year, making monitoring and conservation difficult. (Csuti, B. et al., 1997)

Western Burrowing Owl *(Athene cunicularia hypugaea)* Western burrowing owls live in open deserts, grasslands, fields, and pastures. It will use roadsides and airports. In Oregon, it is most common in the sagebrush steppe of the southeastern part of the state, but also occurs in arid parts of the Columbia Basin. The owl feed on rodents, insects, bats, shrews, small birds, crayfish, reptiles, and amphibians. (Csuti et al., 1997)

Ferruginous Hawk *(Buteo regalis)* The Ferruginous Hawk soars over open country (grassland, desert steppe, juniper woodland). It requires ledges on cliffs, isolated trees, or riparian woodland for nesting, although there are reports of ground nesting from Malheur County. This hawk preys on mammals found in its arid environment, including jack rabbits, ground squirrels, pocket gophers, and kangaroo rats. It will also eat birds and reptiles. This hawk was once common to Oregon, but it has declined with the conversion of grasslands to agriculture over much of its range (Csuti, B. et al., 1997).

Willow Flycatcher *(Empidonax traillii adastus)* This flycatcher is found in willows at the edges of streams flowing through meadows and marshes, but also breeds in thickets along the edges of forest clearings and, generally, in tall, brushy vegetation near water. Normally it does not inhabit grasslands and desert valleys of eastern Oregon in the absence of these microhabitat elements, although it does use vegetation around springs and seeps in desert mountain ranges. They have a routine diet for their family, eating mostly flying insects, especially wasps, but including flies, mosquitoes, ants, beetles, bees, grasshoppers, and dragonflies. They glean some spiders, seeds, and berries from foliage. (Csuti, B. et al., 1997)

Yellow Breasted Chat *(Icteria virens)* The Yellow-breasted Chat breeds in brushy areas and in riparian woodlands along streams. It will use tangles of brush in the open or occurring as understory in deciduous or mixed deciduous-coniferous woodlands. It is absent from high mountains, dense forests, and extremely arid areas. This species has a diet mostly composted of insects gleaned from vegetation. When they are available, it also eats some fruits and berries. Loss of riparian habitat has resulted in the decline of the Yellow-breasted Chat in many regions. (Csuti, B. et al., 1997)

Lewis' Woodpecker *(Melanerpes lewis)* The Lewis' Woodpecker can excavate its own nest chamber, usually in a dead or decayed tree, but prefers to use an existing abandoned woodpecker hole. It begins breeding in late April and May. Both male and female incubate the clutch of 6 to 7 eggs for about 2 weeks. Young fledge about a month after hatching. The diet varies by season. In spring and summer, it mostly eats insects and spiders. The diet turns to acorns and berries in the fall. It stores acorns for winter consumption, usually under the bark or in crevices of trees, or in cracks of utility holes. This species has decline in numbers in Oregon, the result of loss of nesting and food storage trees, and increased competition for nest cavities from introduced European Starlings. (Csuti, B. et al., 1997)

Mountain Quail *(Oreortyx pictus)* Mountain Quail, found at higher elevations, is not a bird of dense coniferous forests, but preferring open forests and woodlands with an ample undergrowth of brushy vegetation. It also inhabits thickets of chaparral and riparian woodland, meadow edges in forests, and brushy re-growth following timber harvest. It winters at the lower edges of forests, sometimes traveling on foot 20-40 miles from its breeding habitat. During the spring and summer, leaves, buds, flower, and bulbs make up most of the diet. They also eat some berries and insects such as grasshoppers, beetles, and ants. In winter, seeds of a variety of plants, including acorns, make up most of the diet. This species has declined recently in the mountains of eastern Oregon. (Csuti, B. et al., 1997)

Pallid Bat *(Antrozous pallidus)* The pallid bat inhabits arid regions and open forest types (ponderosa pine, oaks). It occurs in a variety of desert vegetation types (sagebrush, juniper, salt-desert shrub), and typically uses cliff-faces, caves, mines, or buildings for roosts. Food habits include flightless arthropods including Jerusalem crickets, beetles, grasshoppers, scorpions, moths, and some small vertebrates such as lizards and pocket mice. (Csuti, B. et al., 1997)

Silver-haired Bat *(Lasionycteris noctivagans)* This is a bat of forested areas and is most abundant in older Douglas-fir/western hemlock forests, although it also occupies ponderosa pine forests. It forages over ponds and streams in the woods, and typically finds a day roost under a flap of loose bark. These bats prefer soft-bodied prey, with moths, termites, and flies being the most important food items. It also eats ants, beetles, true bugs, spittlebugs, and planthoppers. (Csuti, B. et al., 1997)

Olive-Sided Flycatcher *(Spermophilus washingtoni)* Olive-sided flycatchers inhabit boreal spruce and fir forests usually near openings, burns, ponds, and bogs. This bird always perches on dead branches in an exposed position at or very near the top of the tallest trees. The species forages on winged insects. No Neotropical bird surveys have been conducted on the UIR.

Townsend's Western Big-Eared Bat *(Corynorhinus townsendii towsendii)* The Pacific big-eared bat occurs in numerous plant communities and appears to prefer caves, lava tubes, mines, bridge undersides, and abandoned buildings for nursery and hibernation purposes. These sites must meet exacting temperature, humidity, and physical requirements. These bats feed on insects that they capture in flight or glean from plants. No cave, lava tube, or mine habitat occurs on the UIR. A few abandoned buildings occur along the Umatilla River and its tributaries. There is a colony using a barn on the Bar M Ranch in the upper Umatilla River east of the UIR (Kronner, 1999).

Comprehensive surveys for this species and other bats have not been conducted on the UIR.

Small-Footed Myotis *(Myotis ciliolabrum)* The small-footed myotis is mainly a bat of shrub-steppe but is also found in ponderosa pine and mixed conifer. This bat forges along cliffs and slopes in dry areas. Hibernation sites occur in caves and mines. Individuals roost in buildings, under bark, and in rock crevices.

Long- Eared Myotis *(Myotis evotis)* The long-eared myotis is mainly in forested areas but also occurs in riparian, shrub-steppe, and agricultural areas. This bat often feeds over water and roots in forests. Maternity roots and hibernation sites occur in buildings, caves, and mines. Individuals roost under bark and in rock crevices and snags.

Long-Legged Myotis *(Myotis volans)* The long-legged myotis is mainly in coniferous forests. The bat often feeds over water and roosts in forests but also pursues prey through, over, under, and around the forest canopy. Maternity roosts occur in buildings, under bark, and in snags. Winter hibernation sites are in caves and mines. Individuals roost in buildings, under bridges, under bark, and in rock crevices.

Yuma Myotis *(Myotis yumanensis)* The Yuma myotis inhabits urban, riparian, and coniferous habitats. Yuma bats are closely associated with water over which they feed. Maternity roosts occur in buildings, under bridges, and in caves and mines. Hibernation sites are in caves and mines. Individuals roost in buildings, under bridges, and rocky exposures. Use of buildings by this species is especially high.

Northern Sagebrush Lizard *(Sceloporus graciosus graciosus)* These lizards are found in sagebrush habitats, but also occur in chaparral, juniper woodlands, and coniferous forests. They require well-illuminated open ground near cover and are primarily ground dwellers. They eat a variety of small invertebrates, including crickets, beetles, flies, ants, wasps, bees, mites, ticks, and spiders. In Oregon, this lizard is seldom above 1,700 meters elevation and is found along river bottoms in the coastal redwood forests of southwestern Oregon. (Csuti, B. et al., 1997)

Preble's Shrew (Sorex prebei) Preble's shrew range occupies a variety of habitats, including arid and semiarid shrub-grass associations, openings in montane coniferous forests dominated by sagebrush, willow-fringed creeks and marshes, bunchgrass associations, sagebrush-aspen associations, sagebrush-grassland, oak chaparral, open ponderosa pine-Gambel oak stands, and alkaline shrubland (Williams 1984, Ports and George 1990, Cornely et al. 1992, Long and

Hoffmann 1992, Kirkland and Findley 1996, Verts and Carraway 1998). No known surveys for Preble's shrew have been conducted on the Umatilla Indian Reservation.

Plant Species of Concern

A survey of approximately 250 sites during the 1980's documented plant species and communities on the UIR, there were no plant species of concern identified. Professional botanists verified all plant identifications. A December, 1988, survey documented 21 sensitive plant species during a survey of 25% of the Umatilla National Forest (Umatilla National Forest 1990) (Table 9). This study does not include the UIR, but it is likely that these species may also occur on the UIR. It is assumed that many of the species are associated with higher elevation forest and historic range limits its presence in the agricultural zone of the UIR.

Table 2-9 Sensitive Plant Species On The Umatilla National Forest (U.S. Forest Service 1990)

Common Name	Scientific Name
Sierra onion	*Allium campanulatum*
Blue Mountain onion	*A. diction*
Swamp onion	*A. madidum*
Flat-leaved onion	*A. tolmiei var. platyphyllum*
Arctic Aster	*Aster sibiricus var. meritus*
Arthur's milkvetch	*Astragalus arthuri*
Transparent milkvetch	*A. diaphanus var. diaphanous*
Moonwort grape-fern	*Botrychium lunaria*
Pond sedge	*Carex limnophila*
Utah thistle	*Cirsium utahense*
Male fern	*Dryopteris filix-mas*
Sabin's lupin	*Lupinus sabinii*
Stiff clubmoss	*Lycopodium annotinum*
Bank monkey-flower	*Mimulus clivicola*
Washington monkey-flower	*M. washingtonensis*
Common twinpod	*Physaria didymocarpa var. didymocarpa*
Blue Mountain buttercup	*Ranunculus oresterus*
Umatilla gooseberry	*Ribes cognatum*
Wenaha current	*R. wolfii*
Scapose catchfly	*Silene scaposa var. scaposa*
Subalpine spiraea	*Spiraea densiflora var. splendens*

The state of Oregon lists five plant species of concern that are associated with the agricultural zone on the UIR.

Table 2-10: Occurrence of Plant Species of Concern

Species	General Area of Nearest Documented Occurrence
Laurence's Milk-Vetch (*Astragalus collins var. laurenti*)	This species is endemic to the Columbia Plateau of northern Oregon, within the Columbia Basin ecoregion. The majority of known occurrences are small and fragmented, with poor estimated viability.
Robinson's onion *(Allium robinsonii)*	Allium robinsonii has been found along the Columbia River from Ferry County, northeastern Washington, to about the mouth of the John Day River, north-central Oregon, and is now possibly extirpated from Oregon.
Dwarf evening primrose *(Camissonia pygmaea)*	*Camissonia pygmaea* is found on unstable soil or gravel in steep talus, dry washes, banks and roadcuts. Regional endemic populations may exist in eastern Oregon (Gilliam, Grant, Harney, and Wheeler counties).
Douglas clover *(Trifolium douglasii)*	The historic range for this taxon was from Spokane County, Washington to Baker County, Oregon, east to adjacent Idaho. The species is currently known only from Garfield County, Washington, and Umatilla and Union counties in Oregon.
Sessile mousetail *(Myosurus sessilis)*	This species was found in hard, bare, dessicated clay, in sparsely vegetated areas of shallow vernal pools, from 275 to 2400 feet elevation. This species is only found in Washington, Oregon and California (in California only in hybrid swarms with both *Myosurus minimus* and *M. sessilis*).

Implementation Costs

The CTUIR currently funds one and one half staff positions, and as needed, may add additional funds to monitor and enforce violations for agriculture management on the UIR. Additional funding from the EPA promotes and implements conservation programs on the UIR. Additional funding for on the ground projects in the Tutuilla/Patawa drainage is authorized annually through EPA PPG and Section 106 for project planning and monitoring. Recent EPA proposals have identified new areas for expansion of activities outside of the Tutuilla/Patawa drainages.

Cost/Benefit Analysis

Successfully producing crops in an economical and sustainable manner requires an accurate assessment of the resources' (soil, water, air, plants, animals, and human) capabilities and limitations. The core practices of crop rotation, tillage, residue management, nutrient management, and pest management are involved to address the capabilities and limitations of any cropland management system. (National Agronomy Manual, 2002)

Several parameters determine whether currently farmed land is best suited in agriculture. Likewise, lands that have gone idle or abandoned may be able to regain cropping history and be eligible for federal assistance through conservation programs or crop insurance. Determining the viability of traditional farming versus sustainable farming methods may provide further insight to the environmental capability and sustainability of agricultural management on a tract-by-tract

basis. Fluctuating commodity prices play key roles in determining the economic feasibility of land use.

The CTUIR does not have exact costs incurred for production. Comparative studies conducted through Oregon State University and Washington State University has illustrated variable yields and net returns based on location, rainfall, crop rotations, soil types and individual farming methods. Yields vary from the North Reservation to the South Reservation and from field to field depending on location.

In 2007, there were approximately 4,962 acres farmed by reduced tillage or no-till operations, 4,782 acres enrolled in CRP, and 15,960 acres under reduced tillage methods meeting HEL requirements set out by NRCS Conservation Plans. Conventionally farmed land, not in conservation programs, totals approximately 2,865 acres. Stream protections have not been required along any of the streams. Farmers have reported that application of conservation buffers along stream courses through the CREP program have paid out comparably to normal wheat production.

Cultural Resources and Traditional Uses

There are approximately 157,982 acres of Tribal fee and Indian trust land within the boundaries of the CTUIR. These lands contain sensitive cultural resources significant to the CTUIR. Agricultural practices such as plowing, burning, exposure to pesticides and fertilizers and installation of improvements such as fences, ponds, and buildings may negatively affect the integrity of cultural resources.

The Umatilla Indian Reservation lands contain sensitive cultural resources significant to the Tribes. These resources are subject to ongoing impacts such as weather, vandalism, farming, and exposure to pesticides and fertilizers. Examples of archaeological resources include:

- Lithic Scatters
- Lithic Tool Quarrying Sites
- Rock Features
- Rock Images
- Village/Habitation Sites
- Historic resources such as roads, canals, ditches, dams, homesteads, structures, dumps, and allotment markers

Other types of cultural resources include:

- Sacred Sites/Traditional Cultural Properties
- Vision Quest Sites/Ceremonial Locations
- Gathering, Hunting and Fishing Locations
- Cultural Landscapes

Additionally, the NHPA requires a lead federal agency to consult with the Tribes involved regarding each undertaking.

Transportation

Road miles within the agricultural zone are approximately 276.8 with an additional 13.5 miles of Union Pacific Railroad lines. Currently road maintenance and construction responsibilities are between CTUIR and the Umatilla County Road Department. CTUIR has limited responsibility for the transportation system with the majority of road maintenance carried out by Umatilla County.

The increase in roads, trails and other routes of transportation has degraded resource values and introduced weeds onto the UIR. The Inter-Disciplinary Team (IDT) recommends the development of a transportation plan, in cooperation with CTUIR Public Works through further analysis documents.

Tribal, Public, and Inter-Governmental Relationships

The combination of deeded land interspersed with trust and Tribal fee land has produced a checkerboard pattern of ownership on the Reservation causing jurisdictional problems for agencies, resulting in isolated or land-locked tracts. Land locked tracts benefit only those operators who currently own adjacent land or lease surrounding tracts. Lack of cooperation and communication between fee, Tribal, and trust land has caused inconsistent land management across the reservation. Fractionated ownership has made the management and administration of the allotted lands extremely difficult and time consuming.

In early 2008 the CTUIR compacted the Range and Agriculture program. Shortly thereafter, the Nixyáawii Governance Center was constructed and the Forestry Program was compacted. Staff maintain close working relationships with Umatilla Agency as the Superintendent maintains inherent federal responsibility to approve many of the activities accomplished by the Range, Ag. and Forestry program on Trust property.

Fisheries and Wildlife Programs, Cultural Resources, Air Quality, and Tribal Farm Enterprise have been essential to improve wildlife habitat, managing prescribed burns, implementing projects, and reducing idle ground. Future cooperation between agencies will be necessary with the implementation of this Agricultural Management Plan.

Lease Compliance

Lease compliance occurs collaboratively by several individuals within the CTUIR DECD Land Program and Natural Resource Range, Agriculture and Forestry Program, taking away from other activities occurring within each department. Non-compliance with the crop plan by the lessee is a lease violation. Violations of the crop plan include but are not limited to incorrect crop rotations, poor weed control, improper use of fire management, and lack of necessary conservation measures.

Trespass is defined by CFR as, "*any unauthorized use of, or action on Indian Agricultural Lands".* The most common trespass violations on the UIR fall into two broad categories: Utilization of Indian land without a valid lease and illegal livestock grazing on croplands.

Staff from the CTUIR-DNR Range, Agriculture and Forestry program monitor all allotments and notify the CTUIR Land Program of any non-compliance All grazing violations, including permit violations and trespass are investigated and resolved by following procedures within 25 CFR §166.800.

Chapter III – Agricultural Management Direction

Introduction

After extensive debate and careful review of the issues and concerns and the options available for management for agricultural lands of the UIR, the BIA and CTUIR selected agricultural management direction based on the following criteria:

(1) To protect, conserve, utilize, and maintain the highest productive potential on Indian agricultural lands through the application of sound conservation practices and techniques. These practices and techniques shall be applied to planning, development, inventorying, classification, and management of agricultural resources.
(2) To increase production and expand the diversity and availability of agricultural products for subsistence, income, and employment of Indians and Alaska Natives, through the development of agricultural resources on Indian lands.
(3) To manage agricultural resources consistent with integrated resource management plans in order to protect and maintain other values such as wildlife, fisheries, cultural resources, recreation and to regulate water runoff and minimize soil erosion.
(4) To enable Indian farmers and ranchers to maximize the potential benefits available to them through their land by providing technical assistance, training, and education in conservation practices, management and economics of agribusiness, sources and use of credit and marketing of agricultural products, and other applicable subject areas.
(5) To develop Indian agricultural lands and associated values added industries of Indians and Indian tribes to promote self-sustaining communities.
(6) To assist trust and restricted Indian landowners in leasing their agricultural lands for a reasonable annual return, consistent with prudent management and conservation practices, and community goals as expressed in the tribal management plans and appropriate tribal ordinances.

Overall Management Intent

Background

Farming is the principal land use of the lowlands within Umatilla County. The CTUIR and BIA intend to manage agricultural lands in an integrated manner. Fragmenting farming operations are small diverse waterways important to the Tribes due to their contribution to the overall water quality/quantity and health of fish and wildlife species. Where riparian areas are in good condition, management direction requires they remain in good condition. Where the condition of the ecosystems is not good, management must occur that leads to improvement in ecosystem integrity and resiliency. The intent of management for habitats used by threatened and endangered species is to protect and/or improve those habitats contributing to recovery of the species.

Enhancing riparian function within the agricultural zone of the reservation includes promoting, planning and implementing permanent riparian vegetation that:

1) Contributes to bank stability;
2) Reduces sediment accumulation and flow;
3) Reduces stream heating where site potential allows establishment of shrub and tree species;
4) Filters pollutants from upland crop management activities; and
5) Provides cover and shade to aquatic species.

Implementing upland crop residue benefits soil health, function, crop productivity and soil sustainability by:

1) Increasing organic matter;
2) Improving biological activity in the soil;
3) Supplying slow release organic fertilizer to plants;
4) Increases percolation allowing increased soil moisture;
5) Securing pesticide and inorganics on site for intended use; and
6) Reducing erosion from cultivated slopes.

Goals and Objectives

Soil Quality and Erosion Component

Background

Soil quality is the suitability of the soil for the planned use. Good quality agricultural soil provides nutrients for plant growth, a medium for recycling and detoxifying organic materials, and a link to plant, animal, and human health. (Brady and Weil, 1999)

Studies are finding that intensive cultivation practices negatively affect soil quality by depleting organic carbon (decreasing organic matter), increasing chemical inputs, and amplifying wind and water erosion. Common practices include deep fine tillage, intensive cropping schedules, irrigation induced salinization, increased pesticide usage, and over fertilization.

Erosion is the removal of soil by water and wind. A major concern for sustainable farming is that the rate of soil loss exceeds the rate of replacement. Erosion is a major cause of reduced fertility, weed infestations, decreased soil structure, sedimentation and water quality degradation.

The most severe soil erosion on Pacific Northwest cropland is from winter wheat seeded late in a fine, conventionally tilled seedbed with little or no residue on the soil surface. Because of the late seeding, wheat plants are small and provide little erosion protection over winter. Fall tillage operations in preparation for spring crops can also cause runoff and erosion problems if most of the crop residue is incorporated, leaving a relatively fine, smooth surface. (PNW 275) Reduced and no till systems on the UIR increase residue and surface roughness. Surface residue and a rough soil surface, slows down water movement and reduces runoff by 60 percent or more compared to low-residue conventional tillage.

Farming practices on the UIR traditionally consist of a 2-year rotation, either wheat/fallow or wheat/legumes, under conventional and reduced tillage systems. Currently there are 18,253 farmable acres on the reservation classified as Highly Erodible Land (HEL), and 8,724 acres classified as Non Highly Erodible Land (NHEL). Highly Erodible Land within the reservation accounts for 70% of cropped land held in trust.

For land to be considered highly erodible, potential erosion must be equal to or greater than eight (8) times the rate at which the soil can sustain productivity. (NRCS Farm Bill 2002). The soil loss tolerance (T) is the amount of erosion (tons per acre per year) that can take place without "significant long-term productivity loss". (Claassen, 2004)

The implementation of an Agricultural Management Plan, designed to integrate sustainable agricultural practices into existing crop production, will ease soil erosion, manage organic and inorganic inputs, and maintain or even improve soil health in the long term.

Goal: Implement practices that improve soil quality and decrease erosion.

Objective: Adopt BMP to increase water filtration of soils and decrease surface runoff.

Objective: Identify and implement current and/or new soil conservation technology to improve the sustainability of agriculture.

Standards and Guidelines

G1: Soil test prior to fertilizer applications

G2: Use appropriate Oregon State University Extension Service fertilizer guides to optimize crop production and minimize environmental impacts.

S1: SCI values, determined when producing cropping plans, must predict favorable trends.

S2: The lessee must farm according to an approved HEL conservation plan, developed to comply with the current USDA farm program legislation. Lessees shall furnish to the CTUIR a copy of the approved NRCS conservation plan fifteen (15) days prior to disturbing any vegetation or soil on the leased premises. By signing a lease, the lessee agrees to comply with the conservation plan.

S3: Operators must control active channel (gully) erosion to eliminate sediment delivery to streams. Active channel erosion consists of gullies or channels, which at the largest dimension, have a cross sectional area of at least one square foot and which occur at the same location for two or more consecutive years.

S4: If allowed in NRCS conservation plans, the lessee will perform April through October tillage and seeding operations across slope or as close to the contour as possible. Tillage and seeding operations must run parallel to terraces or diversions if such structures exist. Fields will

be tilled and furrowed on the contour and remain in said condition during the months of November through April. All tillage operations will be such as to maintain the soil surface in a rough, cloddy condition.

Crop residue that remains after harvest is sometimes too excessive to cultivate and break down in the soil; it may be necessary to swath and bale residue, especially after harvesting with Stripper-Header combines. Operators may utilize a mower or chopper in conjunction with ordinary cultivation. If baling, chisel chopping, or mowing is not a feasible option then burning may be an alternative but only under specific approved circumstances.

S5: Crop Residue must remain on light/ashy soils to assist in increasing organic matter and to provide an erosion control.

S6: No residue will be baled for hay or straw unless specified and agreed to in the lease agreement. When the lease does not have a residue removal agreement and under certain circumstances, a request in writing, must be filed with the CTUIR Land Program to remove residue from any trust land.

S7: Crop residues will not be burned without written authorization from the Agency Superintendent, NRCS and CTUIR Air Quality. The NRCS must approve a "clean-till" request. A clean-till consists of either burning or tillage to remove excess residue or clean up weed problems. These operations are only allowed but once every five years. Also see (Air Quality for burn permit requirements)

S8: Operations on HEL must follow NRCS guidelines. A farmer may initiate a clean-till operation only with approval from NRCS, CTUIR and the Agency Line Officer.

Water Quality Component

Background

According to the CTUIR List of Water Quality Limited Streams (Table 3), many streams traversing agriculture lands on the UIR are water quality limited due to elevated temperatures, excessive sedimentation and habitat modifications or combination thereof (Appendix A). Cultural water use, fish and other aquatic habitat, and water contact recreation are beneficial uses adversely impacted by these water quality deficiencies.

Table 2-1: CTUIR List of Water Quality Limited Streams

Water Name and Description	Water Quality Parameter
Buckaroo Creek – Mouth to River Mile (RM) 4.75	Temperature
Isqúulktpe Creek – Mouth to headwaters	Temperature
Meacham Creek – Mouth to RM 13.0 at Reservation Boundary	Temperature

Mission Creek – Mouth to headwaters	Turbidity
North Fork McKay Creek – Mouth to headwaters	Temperature
Spring Hollow Creek (tributary to Wildhorse Creek) – Mouth to headwaters	Temperature
Umatilla River – West Reservation boundary to east Reservation boundary	Temperature
Umatilla River – West Reservation boundary to Mission Creek	Turbidity
Wildhorse Creek – Mouth to RM 26	Temperature

(CTUIR Integrated Report 303(d) list).

Cultivation exposes top soil and increases runoff rates into streams, alters stream channel morphology and flows, facilitates erosion, reduces riparian cover, and generates organic and inorganic inputs in surface and ground water. Intensive tillage practices escalate soil particulate matter in the air and sedimentation in water, reduces field buffers along streams and tributaries therefore limiting the filtration of sediments, chemicals, and/or nutrients. Generally, fertilizer applications increase with the loss of nutrient rich topsoil, risking runoff and leaching into surface or groundwater, causing nitrate and phosphate contamination, eutrophication of ponds, lakes, and slow moving rivers resulting in the death of non-target plants and wildlife.

These impacts along with road and railroad construction and maintenance, stream manipulation (channelization, diking, rip-rapping, etc.), and intensive grazing have significantly affected aquatic resources on the UIR.

Goal: Meet or exceed Tribal Water Quality Standards for surface and ground water to protect all beneficial uses.

Objective: Reduce anthropogenic heating by shading streams where environmental conditions will allow (soils, depth of soils, flood plain connectivity, and vegetation community association).

Objective: Reduce anthropogenic fine sediment yield and increase bank stability by maintaining or increasing riparian vegetation.

Objective: Reduce anthropogenic organic and inorganic inputs to surface waters.

Objective: Provide for the biological and physical needs of fish and other aquatic organisms by enhancing and protecting native vegetation, floodplain function, stream channel form and function, and in-stream habitat diversity within riparian management areas.

Standards and Guidelines

S9: Agricultural management activities have a high potential to affect select water quality parameters, temperature, turbidity, dissolved oxygen and contaminants. Agricultural production

will be planned and implemented to meet Tribal Water Quality Standards (TWQS). Modification of agricultural practices will promote measurable improvements in stream reaches where water quality does not meet Tribal Standards.

When the distinction between the classifications of surface water, wetlands, or groundwater is undecipherable, the applicable standards will depend on the existing and designated beneficial use that may be adversely affected. At the boundary between waters of different classifications, the more stringent water quality criteria shall prevail. If the designated beneficial uses of more than one resource are affected, the most protective criteria shall apply.

S10: Mechanized equipment is prohibited in stream channels except at designated crossing areas. The CTUIR WRP must grant authorization for in-stream work. If any part of an allotment is limited due to the implementation of buffers, a Stream Zone Alteration Permit and approval of the BIA Superintendent is required to construct stream crossings. Stream crossing construction must follow standards listed in the CTUIR Standards to the Water Code.

S11: Riparian Management Zones consist of the upslope areas for a distance of 75 feet times the stream order (to a maximum of fourth order) applied to each side of the stream channel, outside the active floodplain, to a maximum of 300 feet.

S12: RMZ will be enforced on applicable streams within the agricultural area

G3: The RMZ inner zone width will consist of ¼ or the Riparian Management Zone.

G4: Ground disturbance within the RMZ inner zone buffer will be limited to provisions outlined in conservation and crop rotation plans made part of farm leases on the Umatilla Indian Reservation unless it is to establish healthy riparian vegetation or is otherwise deemed appropriate by the Soil Conservationist.

S13: All active floodplains, riparian areas, and wetlands must be restored and protected through appropriate land use practices.

Applying BMP does not create a situation where any or group of practices will remedy all environmental degradation. Each environmental condition may result in the use of a different BMP to remedy any ecological deficiency.

S14: Large woody debris has been removed from many streams in the area and this can have a detrimental effect on pool frequency and quality. Incorporation of large woody debris will be encouraged as site potential allows. Large woody debris consist of large pieces of wood placed systematically within the stream channel and used to slow water flow, diversify available habitats, and minimize stream channelization. The Oregon 1998 303(d) List: states Oregon Department of Fish and Wildlife (ODFW) Habitat Benchmark for Wood pieces per 100 meters; Desirable >20, and Undesirable <10. Much of the riparian vegetation has been removed from the streamside, reducing the future recruitment of large woody debris.

G5: Contour cultivation, conservation tillage, and cover crops will be encouraged within the outer zone to minimize water erosion and enhance RMZ performance.

S15: Management activities must support a stable floodplain and channel condition or promote floodplain development at an elevation that is accessible to stream flow during high flow events. Repeatable channel morphology measures such as channel dimension, pattern, and profile used in trend analysis identify a stable condition. A stable floodplain and channel efficiently routes sediment without aggrading or degrading and maintains consistent channel features through time.

Wildlife and Fish Habitat Component

Background

The impact of agriculture on wildlife and fisheries includes stream channelization, loss of riparian vegetation, increased sediment input, the loss of wildlife habitat, and changes in hydrology associated with land conservation (Umatilla/Willow, 2004). Agricultural practices and human development continue to affect many habitat types.

In July 2005, the UIR completed the CTUIR Total Maximum Daily Load (TMDL) for Temperature and Turbidity in compliance with the Clean Water Act, 1972. The TMDL and associated Water Quality Management Plan notes implications from the over use of riparian areas on stream morphology and wildlife habitat.

Cultivation and reduced plant/residue cover has implications to streams on the UIR including stream channelization to prevent flooding, natural channel movements into fields, excessive fine sedimentation from intensive tillage, runoff, and increased water temperatures.

Channelization can:

1. Compress the period of water conveyance making streams flashier and increasing and concentrating the energy of the water within the channel itself
2. Create higher flood peaks
3. Deliver greater loads of sediment and nutrients
4. Destroy riparian areas
5. Decrease the recharge to shallow groundwater aquifers thus creating higher summer temperatures and lower winter temperatures
6. Channelization greatly decreases winter habitat for juvenile salmon and steelhead (Umatilla/Willow, 2004)

Excessive fine sedimentation in fish habitat limits respiration and feeding, social organization, oxygen availability, removal of metabolic toxins near eggs, and renders spawning sites less suitable. Increased temperatures cause decreased or lack of metabolic energy for feeding, growth or reproductive behavior, increased exposure to pathogens, decreased food supply, and increased competition from warm water tolerant species. (CTUIR TMDL, 2005)

The availability of food, water, and cover regulates wildlife populations, with shrub-steppe and grassland habitats being the most heavily affected. Diversity in both plant species and plant

communities over short distances is the key to healthy wildlife populations (Holechek et al., 1989). The closer these basic components of wildlife habitat occur together, typically the greater diversity and total numbers of wildlife species. The conversion of large areas of native vegetation to croplands has resulted in a significant loss of wildlife habitat forcing deer, elk, and other wildlife to utilize agricultural land resulting in economic losses.

The impacts of agriculture on wildlife habitat have not been all negative. Wildlife populations inhabiting cropland can be quite high with many small birds and mammals, coyotes and red-tailed hawks, and game species such as ring-necked pheasants and wild turkey supported. (Umatilla/Willow, 2004) Agricultural lands enrolled in the USDA-Conservation Reserve Program (CRP) provide long-term grass and shrub habitat without the annual disruption of crop production practices. As these habitats age, there is a need to refresh the stands as they become monocultures of the most dominate grasses. As the Farm Service Agency (FSA) offers re-enrollment or new enrollment, they have implemented measures to improve the existing stands and new enrollments to be more wildlife friendly.

Goal: Develop and protect essential fish and wildlife habitat as defined by DNR, NOAA, and USFWS

Objective: Provide for the biological needs of fish in riparian management areas by maintaining adequate riparian vegetation and in stream habitat diversity.

Objective: Develop and maintain riparian management areas in agriculture zones.

Objective: Provide for biological needs of upland game birds in riparian management areas and USDA-Conservation Reserve Program (CRP) fields.

Objective: Promote cropping systems that reduce conflicts between big game and agriculture

Objective: Utilize federal incentive programs to provide winter foraging for big game and minimize agriculture/wildlife conflicts.

Standards and Guidelines

Agricultural lands placed into CRP, CREP or idle lands that provide grassland cover will follow standards described in the USFWS Western Meadowlark Habitat Evaluation Procedures model (Shroeder and Sousa 1982). Based on its habitat requirements, the western meadowlark serves as an indicator for other grassland nesting species and literature is available to support habitat standards to meet its life history requirements. Localized site potential must be understood prior to establishment of conservation programs. Standards and guidelines are as follows:

S16: Canopy cover will consist of sixty percent (60%) herbaceous cover and up to ten percent (10%) shrub cover, as site potential allows.

S17: Sixty percent (60%) of the herbaceous material will consist of grasses 7 – 19" tall, as site potential allows.

S18: To provide cover for nesting birds, USDA-CRP or idle lands should not receive mechanical treatment (mowing) or pesticide treatment from May 15 to July 1 unless restoration of the plant community is being implemented.

Fish screening and water diversions

S19: Fish screening of water diversions must be subject to NOAA Fisheries, Standards for Fish Screening of Water Diversions.

The implementation of an ongoing inspection, maintenance, and repair program will assure the facilities are free of debris, and that screen material seals, drive units, bypass entrances, conduits, and other components are functioning.

In-stream standards and guidelines as they relate to water quality are located in the Water Quality Standards and Guidelines.

Native Plant Communities

As stated within the Water Quality Standards and Guidelines, RMZ standard widths will be established for streams of applicable order classification. The following standards work in cooperation with those already stated.

S20: Riparian areas or reserve lands within agriculture lands must support or make measurable progress (as measured by plant composition and ground cover) toward supporting the appropriate native plant community for the site or an appropriate plant community defined as the desired plant community.

S21: Active floodplains, riparian areas, and wetlands with shrubs including areas having potential for shrubs, or where shrubs have been removed in the past, management activities should achieve 80% coverage of each bank with at least 50% of that cover at full height typical for the shrub species involved.

S22: Riparian areas that cannot support shrub vegetation (e.g., rocky or thin soils), springs, and isolated or seasonal wetlands, must support or have measurable progress, as measured by plant composition and ground cover, toward supporting undisturbed riparian plant communities or wetland plant communities typical to the site.

Through vegetation treatments, restoration of native plant communities on the UIR is of vital importance.

S23: A prioritized seed preference list for any seeding operation is as follows:

A. Locally adapted native seed
B. Native cultivars
C. Approved Non-invasive introduced species

Projects with known, pre-determined species and quantities will use a native seed source. Cultivars will only be used in the absence of adequate true native seed sources, when environmental and economic thresholds for native perennial grasses have passed, when threats of noxious weed infestations, or when accelerated soil erosion is immediate and cannot be addressed in a timely manner with true native seeds. In such cases, landowners or operators will use non-native species with non-persistent characteristics as approved by the Tribal Restoration Ecologist.

S24: Native shrub and tree selection for any re-vegetation project should be locally adapted to the area. It is preferable to have local native stock that originates at or as near project area as possible.

G6: Planting (by seeding or transplanting) grasses, forbs, shrubs, and trees in deteriorated riparian areas, bottomland forests, and reserve lands is appropriate if:

A. Natural regeneration of plants will not establish sufficient cover;
B. The vegetation that will establish or has established on the site is not an acceptable plant community;
C. Land use or activity plans require certain plant communities to meet objectives.

S25: The Tribal Restoration Ecologist will provide plant lists for native and non-invasive plants.

Air Quality Component

Background

The air quality on a reservation has important implications for quality of life, culture and religion, economic development and other significant areas of concern to the Tribe. Air pollution can make people sick, harm the environment, damage property, and reduce visibility. It originates from the build-up of harmful gases and particles in the air, which is the function of two things: 1) the amount of pollution emitted into the air, and 2) the degree of pollutant dispersal. (Tribal Clean Air Handbook) Particulate Matter (PM) is a common pollutant found on the UIR, caused by prescribed burning and conventional tillage practices.

Farmers use prescribed agricultural burning to remove stubble left in fields after harvest, to control weeds, plant diseases, facilitate no or minimum tillage farming and improve the yield of certain crops. Smoke from these fires contains a complex mixture of gases and fine particles, which cause problems such as burning eyes, runny nose, and illnesses such as bronchitis (Environmental Protection Agency (EPA), 2003).

Currently through the Federal Air rules for Indian Reservations (FARR), a permit program exists for the CTUIR to regulate agricultural burning. Landowners or operators who want to perform agricultural burning on the UIR are required to get a permit through the CTUIR Air Quality Program (AQP). All potential prescribed burns on agricultural trust land will also need approval through the CTUIR prior to burning. Agricultural burning includes windrow burning, ditch

burning, stubble burning, and field sanitation. Currently there are no federal standards on PM as it relates to tillage on the UIR.

For EPA standards on agricultural burning, see EPA 40 Code of Federal Regulations (CFR), part 49 Federal Implementation Plans Under the Clean Air Act for Indian Reservations in Idaho, Oregon, and Washington; Final Rule April 8, 2005.

Goal: Meet or exceed Tribal/Federal Air Quality standards while allowing sustainable Agriculture.

Objective: Implement Tribal Smoke Regulations.

Standards and Guidelines

Agricultural Burning

Agricultural burning is a form of open burning, including but not limited to; windrow burning, ditch burning, stubble burning, and field sanitation. Agricultural burning may be performed to prevent disease, control pests, rotate crops, or for crop reproduction.

General Standards for Burning on Trust Agricultural Lands

S26: A completed NRCS Conservation Clean-Till Request is required for all HEL prior to issuing a burn permit. A farmer may clean-till every 3 years in an annual crop system and every 5 years on a wheat/fallow rotation. The Agency Superintendent must also approve all clean-till permits.

S27: Applicants must obtain, complete, and submit permit forms to the CTUIR OAQ at least three business days prior the desired burn date. Approval is also required from the BIA superintendent.

S28: After submitting a completed application, the applicants must call CTUIR OAQ no later than 12:00 pm prior to the day of the desired burn.

S29: The CTUIR smoke managers review requests between 12:00 pm and 2:00 pm to determine the preliminary recommendation for the burn area(s). Pre-approved applicants will receive notice of a preliminary decision by telephone by 6:00 pm.

S30: The pre-approved applicant must call the CTUIR OAQ by 9:00 am to determine whether the burning is allowed the day of the planned burn.

S31: Prior to field ignition, the applicant must call the CTUIR OAQ to find out if any changes have occurred in conditions for that day.

S32: Within 24 hours after the burn, the applicant must contact the CTUIR OAQ with post burn information.

S33: Applicants are responsible for compliance with any applicable burn safety requirements and must obtain applicable fire safety permits.

S34: Applicants are responsible for shutting down burns when necessary and/or requested to do so by the CTUIR OAQ or US EPA.

S35: Operators may burn diseased stubble if it is the only alternative or is a recommended treatment. Burning for weed infestations is not a replacement of proper weed management practices. Stubble may be burned if the field is heavily infested with cheat (Bromus secalinus), ripgut brome (Bromus rigidus) downy brome (Bromus tectorum) jointed goatgrass (Aegilops cylindrical), etc., during the optimum time to burn. In general, immediately following harvest for a month is the best time to burn. Fall burning will result in a fire hot enough to be effective in killing the seed source and sterilizing the seed.

Monitoring and Evaluation Component

Background

Monitoring is an evaluation process usually conducted to determine the response to some management program (Holechek, 1989). To accomplish an adaptive management cycle, monitoring is critical to determine whether or not prescribed management actions are achieving the stated goals and objectives, and moving the landscape area towards the desired conditions. Landscape level evaluations of the results obtained from monitoring efforts will generate recommendations to continue current management or determine changes in management practices to meet the goals and objectives. The outcome could be modifications in mitigation measures, future actions, monitoring schemes, objectives, standards, guidelines, or some combination of these. The outcome of monitoring may lead to changes in management within the landscape area.

Goal: Establish monitoring standards to provide sound data to measure and regulate impacts of the chosen management plan.

Objective: Utilize monitoring protocols consistent with the Tribes TMDL and accepted by the Tribal community to measure relevant biological/physical parameters.

Objective: Develop and implement fish and wildlife habitat monitoring protocols.

Objective: Summarize and utilize existing data concerning all agriculture lands.

Objective: Develop protocol for monitoring big game use and the damage caused to agriculture crops as well as identify thresholds for responding to damage complaints.

Standards and Guidelines

Different levels of monitoring or accelerating regular monitoring cycles may be required due to unforeseen events, such as wild land fire, floods, drought or other climatic conditions, administration actions or corrections related to land status, management or trespass. Assessment will include watershed function in the uplands and riparian/wetland areas, ecological processes, habitat for native, threatened and endangered species, and locally important species.

S36: Monitoring and evaluation must be provided to insure that the standards provided for Components be met or that there is an upward trend towards meeting those standards.

G7: Monitoring methodologies, schedules, costs, and responsibilities are displayed in **Table 3-2**. Managers must allocate time and funding as needed to meet monitoring needs.

Table 3-2 Agricultural Monitoring – Elements, Standards, Monitoring Schedule and Methodology

Element	Standards	Monitoring Schedule	Methodology
Soil Quality	Residue levels on HEL ground must meet NRCS HEL requirements	Once per year, After fall planting before Dec 1.	line transect method
	Crop yields and operation records must match planned SCI trends	Once per crop cycle	Crop yield and operations reporting
Water Quality	Bank stability > 80%	Year 1, every 3rd year thereafter	EPA Greenline, 1993
	No more than a 10% increase in natural stream turbidities as measured relative to a control point immediately upstream	Year 1, every 3rd year thereafter	In Situ ISCO monitoring
Wildlife and Fish Habitat	<20% stream substrate surface area covered by fine sediments (dia. < .25 in.) within fish spawning habitat.	Year 1, every 3rd year thereafter	Pebble count of representative reach.
	The 7-day moving average of daily maximum stream temperatures is; <50 degrees F in bull trout habitat; 55 degrees F in salmonid spawning habitat; 64 degrees F in salmonid rearing habitat.	Annually	In-stream temperature monitors
	Active floodplain areas with shrubs or shrub potential > 80% coverage of each bank with at least 50% of that cover at full height typical for the shrub species involved	Year 1, every 5th year thereafter	Line intercept, measuring stick
Air Quality	Air quality levels must stay below 75% any national ambient air quality standard for particulate matter	EPA	EPA
	Discretionary - Tribal Air Quality Monitoring	CTUIR DOSE OAQ	CTUIR DOSE OAQ
Weed Control	The occurrence of noxious and other selected weeds will be documented.	RAF Annually upon reported problems.	Mapping through on the ground surveys, GPS, and aerial surveys
Idle Lands	Idle Land Inventory	Annually	Records search and historical data
	Idle Land Advertisement	Annually	90-Day notices and Bid Advertisements
Threatened and Endangered Species	No measurable standard, comply with NEPA and ESA	Pre-implementation of Ag Management Plan	Pre-field review of literature, field surveys as needed
Cultural Resource and Traditional Uses	Survey prior to ground disturbing activities and avoid impacts	Throughout activities	Utilize monitors

Weed Control Component

Background

Humans facilitate the spread of weeds, either intentionally or unintentionally. Regardless of the method of introduction, weed problems on the UIR are as prevalent and troublesome as elsewhere in Oregon and the United States. Many weed species take advantage of disturbed agricultural or riparian areas to establish and spread. The CTUIR utilizes the Umatilla County Noxious Weed List for updated area problem weeds and their severity. (Appendix B)

All agricultural leases on trust land have specific language in the Soil Conservation and Crop Rotation Plan, attached to and made part of the lease, addressing weed control on leased land. Section 3 General Management, in 3.04 Weed Control, lists specific monetary damages for non-compliance.

County noxious weed funding on Right of Ways (ROW) is not sufficient and the ROWs on the UIR are not a priority because of the expansive road system the county is responsible for outside of the boundary.

Limited resources are available to undertake this massive problem, for example jurisdiction of weed control on fee land is limited, there is little funding for weed control on trust lands, and the Umatilla County Weed Ordinance is minimally enforced, on fee status land, throughout the UIR. Promotion of the Umatilla County Weed Ordinance has been one of the ideas to begin to address the problem.

Goal: Utilize Integrated Pest Management (IPM) to control noxious and invasive weed species on agricultural land.

Objective: Expand treatments on all idle trust land as funding becomes available to prevent further spread of noxious weeds.

Objective: Develop communication with fee landowners to coordinate weed control actions and achieve consistent control of noxious and invasive species.

Objective: Provide educational opportunities addressing weed identification and control for Tribal members, lessees, and fee landowners.

Standards and Guidelines

S37: The lessee shall control all weeds on all lands stated under the lease. The Lessee shall be responsible for, or shall immediately reimburse the designated weed program, any weed control cost incurred because of the Lessee's failure to control weeds on said premises. (Soil Conservation and Crop Rotation Plan)

S38: Noxious weeds shall be intensively controlled or eradicated. Noxious weeds for the purpose of this plan are those weeds determined to be noxious by the Umatilla County Weed Board and so declared by the Umatilla County Board of Commissioners. (Soil Conservation and Crop Rotation Plan)

S39: All other weeds shall be controlled and not allowed to set viable seed. (Soil Conservation and Crop Rotation Plan)

G8: Weed management and control will follow the provisions listed and explained in the BIA Integrated Weed Management Plan (IWMP) for the UIR. Any noxious and/or pervasive weed control projects must follow approved standards and guidelines for weed control listed in the IWMP. Identification of species control needs will reference the Umatilla County Noxious Weed List.

S40: **Pesticide** applicators are subject to EPA laws and restrictions on the product label of any chemical used.

Idle Lands Component

Background

Idle or abandoned agricultural lands result in lower land values, reduced income to landowners, and decreased natural resource values. The Agricultural Management Plan must address this problem to prevent more agricultural lands from becoming idle and to develop a strategy to return idle lands to suitable land uses. Currently there are an estimated 2700 acres or about 86 farmable allotments that appear to be idle with decreased natural resource, economic, and social values.

The goal of the Tribe is to keep all trust lands in suitable land uses for the benefit of the landowners and the Tribe. The objective is to provide measures to assist landowners or operators to keep land in or return land to suitable, productive land uses and to provide access to assistance and programs that help landowners manage their agricultural land. The idling or abandonment of agricultural lands, with resulting undesirable plant communities, is not an acceptable option to the Tribe.

Problems associated with idle lands include undesirable vegetation/weed infestations that decrease land productivity for raising crops, forage, wildlife habitat, decreased water quality, increased soil erosion causing damage to roads and home sites, decreased income for landowners, and decreased return on Tribal investments to the community.

Solutions to the problem include:

- Annually develop an inventory and assessment of all idle lands.
- Adjust lease programs to provide incentives to operators to continue to farm the land.
- Assist landowners to determine the proper or most beneficial use for any tract of land.

- Provide education to landowners to help them understand the range of land uses and importance of keeping land in suitable uses.
- Develop the capacity of the Tribal Farming Enterprise or custom farmers to farm more land or manage conservation programs on idle land.
- Make absentee landowners aware of the problems with allowing land to go idle.
- Assist landowners to consolidate or reorganize allotments to eliminate size or location impediments.
- Provide to landowners information concerning technical and financial assistance programs available for conservation, land retirement, wildlife habitat, wetland enhancement, etc.

Goal: Establish management strategies for idle lands, incorporating the most appropriate land uses.

Objective: Determine a time line that agriculture lands will remain idle before the land use classification changes

Objective: Promote incentives to utilize idle lands

Objective: Provide flexibility to the negotiation/bid process

Objective: Schedule advertised bids at minimum two times per year and include idle lands

Standards and Guidelines

S41: Idle farmlands that have not been farmed within the previous five years and are located adjacent to a range unit will be considered for incorporation into the unit (as fencing is constructed) and grazed under the range management strategy for the reservation and the particular unit plan.

S42: Tracts where the vegetation is suitable for grazing will be converted to pasture and leased as such if economic and environmental conditions allow

S43: Lands that meet specifications for re-forestation or forestation may be converted to a forest type.

S44: Annually an inventory of trust lands and their status will be available. The inventory should include:

- Location
- Acreage
- Length of time since last farmed
- Soils
- Average Yield
- Reason for the tract to be idle

G9: An idle tract of Indian Trust land may be considered for a lower rental rate or cost share to decrease the risk a farmer must take to regain profitable agricultural production. The landowners and Superintendent must approve these rental rates and cost share opportunities. Using reports from the Soil Conservationist, the Superintendent will determine the condition of the tract in reaching a decision.

G10: Reserve and idle lands must be seeded immediately prior to the period of longest favorable growing conditions. A favorable growing period of forty to sixty days will generally assure successful stand establishment. Any fall seeding must occur late enough that no germination occurs until early spring.

S45: Leasing protocols for Negotiated Leases

- Upon presentation to the CTUIR of a negotiated lease with a majority of shareholder signatures, the BIA will provide a written lease with negotiated terms to the tenant within 45 working days

- Upon receipt of the lease to the tenant, he/she will have 35 working days to provide a bond, proof of acceptance of lessor forms, and landowner signatures and if necessary, proof that an attempt was made to contact all of the landowners, including those residing out of the immediate area

- Should a lease be negotiated due to the lack of a majority interest of owners who are not non compos mentis, orphaned minors, undetermined heirs of an estate, whereabouts unknown, and/or persons who have given the Superintendent written authority to sign on their behalf, the Superintendent will commit their respective interests when all other owners have agreed and signed a new lease

G11: Leasing protocols for Lease Advertisements:

A year prior to the expiration of a farming lease, the CTUIR Land Program mails 90-day notices to all landowners of the allotment. Upon receipt of the letter, landowners have 90 days to negotiate with any prospective tenant for a lease. After the 90 days expires, the Superintendent has full authority to grant leases on advertised tracts without further involvement by landowners.

- When owners of a tract are not successful in negotiating a lease within the 90-day notice period the lease will be advertised under the BIA Lease Advertisement Guidelines.
- The CTUIR Land Program will attempt to lease trust tracts in a second Lease Bid Advertisement if the first attempt is unsuccessful.
- The BIA will attempt to negotiate leases on tracts that remain un-leased after two lease advertisements with the Tribal Farming Enterprise, or if possible, enter the trust tracts into a USDA Conservation program.

- For tracts where the CTUIR Land Program is not able to secure a lease, the landowner(s) will be encouraged to control noxious weeds and promote a healthy plant community.

S46: Where land has fallen idle and no use has occurred for at least 5 years**,** the CTUIR will begin the process of incorporating the tracts into a range unit, pasture, or permanent cover crop as mandated by **S41, S42** and **G10.**

G12. Landowner consent must be obtained prior to changes in land use.

S47: A list of tracts that are idle or in danger of becoming idle will be generated and advertised on a yearly basis

Element 8 Threatened and Endangered Species Component

Background

As part of the decision-making process, federal agencies must consider the effects of their action on listed or proposed to be listed threatened and endangered plant and animal species. The Endangered Species Act (ESA) of 1973 as amended requires federal agencies to ensure that actions taken will not likely affect the continued existence of any threatened or endangered species. The BIA is required to consult with National Oceanic and Atmospheric Administration (NOAA) Fisheries and United States Fish and Wildlife Service (USFWS) for those actions, which may or will, adversely affect listed species prior to implementing the actions.

The BIA has not developed policy regarding the designation of sensitive plant and animal species. The definition of a sensitive species as it relates to this plan is, those plant and animal species for which population viability is a concern as evidenced by:

1. Significant current or predicted downward trends in population numbers or density
2. Significant current or predicted downward trends in habitat capability that would reduce existing species distribution (BIA Weed EA, 2000)

Goal: Protect threatened and endangered species and their habitats as mandated in the ESA.

Objective: Up-date threatened and endangered species records for the UIR

Objective: Insure that all actions consider impacts to threatened and endangered species

Objective: Identify opportunities to improve critical habitat for listed species

Standards and Guidelines

S48: Meet legal and biological requirements for the protection of endangered, threatened, and sensitive plants and animals will be met.

S49: Complete required biological review according to the requirements of the Endangered Species Act as amended. Consultation requirements of the US Fish and Wildlife Service and NOAA Fisheries will be met.

Implementation Costs Component

Background

Agriculture and infrastructure maintenance, and lease compliance monitoring are the major costs associated with managing the Reservation's agriculture program. Without the appropriate funding and staffing levels to accomplish such activities, needed actions go undone, compounding future issues.

Staffing resources will be necessary to educate owners and operators regarding compliance issues, penalties for non-compliance and incentives for compliance. Enforcement and compliance needs to be coordinated and consistent between all Tribal departments.

Goal: Funding and staffing levels adequate to implement the desired plan and subsequent monitoring program

Objective: Maintain required funding and staffing levels to carry out management activities

Objective: Pursue funding and cost sharing sources to carry out the management plan and monitoring program

Objective: Maintain program flexibility so that management emphasis and strategies remain the same to the extent possible

Objective: Identify the responsibility and funds for monitoring the biological and physical parameters of agriculture

Cost/Benefit Analysis Component

Background

Successfully producing crops in an economical and sustainable manner requires an accurate assessment of the resources' (soil, water, air, plants, animals, and human) capabilities and limitations. The core practices of crop rotation, tillage, residue management, nutrient

management, and pest management are involved to address the capabilities and limitations of any cropland management system. (National Agronomy Manual, 2002)

Several parameters will determine whether currently farmed land is best suited in agriculture. Likewise, lands that have gone idle or abandoned may be able to regain cropping history and be eligible for federal assistance through conservation programs or crop insurance. Determining the viability of traditional farming versus sustainable farming methods may provide further insight to the environmental capability and sustainability of agricultural management on a tract-by-tract basis. Fluctuating commodity prices play key roles in determining the economic feasibility of land use.

Goal: Optimize land use practices through accurate analysis of environmental, economic, and social conditions

Objective: Determine land suitability based on soil types, precipitation, wildlife use, accessibility and crop revenues

Objective: Promote appropriate technologies to ensure long-term agricultural sustainability

Objective: Encourage utilization of all incentive programs to promote and encourage sustainability

Cultural Resources and Traditional Uses Component

Background

All undertakings conducted, funded, or permitted by a federal agency are subject to the National Historic Preservation Act (NHPA), 16 U.S.C. § 470 - 470x-6. The NHPA requires that for all undertakings, whether conducted by a federal agency or by a private party with federal involvement, the lead federal agency evaluate the effects of the undertaking on sites listed in or eligible for inclusion in the National Register of Historic Places (National Register), 16 U.S.C. § 470f.

Under 101(d) 2 of the NHPA, the CTUIR assumed Tribal Historic Preservation Office (THPO) responsibilities from the State Historic Preservation Office (SHPO) in 1996 in an agreement with the United States Department of the Interior, National Park Service. The THPO oversees compliance with the NHPA for those lands within the exterior boundaries of the UIR and other Tribal lands.

Additionally, the NHPA requires a lead federal agency to consult with the Tribes involved regarding each undertaking. Within the UIR, the lead federal agency shall consult with the Cultural Resources Protection Program, Department of Natural Resources (DNR), of the CTUIR.

Goal: Maintain and improve the integrity of cultural resource sites

Objective: Protect the frequency, size, and integrity of cultural resource sites within agricultural areas

Objective: Prevent degradation to or removal of cultural resource artifacts and sites including traditional use areas, as identified by cultural resource staff, within agricultural areas

Objective: Consult with THPO prior to disturbing previously undisturbed lands to ensure that no cultural resources are harmed

Standards and Guidelines

S50: In order to evaluate the effects of the undertaking on historic properties, the CTUIR must follow the process outlined in the NHPA's implementing regulations (36CFR800). The CTUIR Tribal Historic Preservation Office (THPO) must be consulted for each undertaking that has the potential to affect historic properties, including sites of cultural significance to the CTUIR. (Appendix E)

S51: The lead federal agency must define the Area of Potential Effects (APE) of the undertaking in consultation with the THPO. The THPO has 30 days to respond.

S52: Cultural resource assessments will be conducted prior to each undertaking. The cultural resource assessment may use historic documents, oral histories, and/or archaeological field investigations to determine the nature and extent of such resources within the affected environment.

S53: If the archaeological fieldwork or oral history assessment locates cultural resources, avoidance or mitigation measures may be necessary.

S54: The THPO and the Cultural Resources Protection Program (CRPP) require that professionals meeting the Secretary of Interior's Standards for the type of work to be performed oversee the cultural resource reports. All documentation regarding location, use, and character of historic properties is confidential and exempt from release under the Freedom of Information Act.

S55: The lead federal agency must submit the cultural resources report to the THPO and the CRPP.

S56: The lead federal agency will make their finding of effect and this finding must be sent to the THPO for review and concurrence. The THPO has 30 days to concur with the finding of effect.

S57: All projects will be designed to avoid disturbance to cultural resource sites. If this is not feasible, a mitigation plan will be developed in consultation with the Cultural Resources Protection Program and the Tribal Historic Preservation Office.

S58: In the event that cultural resources are exposed during project activities, those activities will cease until the discovery can be assessed. The undertaking may need to be modified so that the resources are left undisturbed.

S59: Plantings should include or enhance culturally important plants when feasible.

S60: Other laws and regulations governing federal action include the Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. 3001 et seq., the Archaeological Resources Protection Act (ARPA), 16 U.S.C. 470aa et seq., Executive Order 13007 regarding the protection of sacred sites, and other federal and Tribal laws, policies, regulations and guidelines.

Transportation Component

Background

The increase in roads, trails and other routes of transportation has degraded resource values and introduced weeds onto the UIR. The Inter-Disciplinary Team (IDT) recommends the development of a transportation plan, in cooperation with CTUIR Public Works through further analysis documents.

The AMP cannot fully address many of the issues and concerns raised during the planning process without consideration of the transportation system needed for administrative, subsistence, and economic use. However, CTUIR believe that the political and social complexity of access for these uses warrants the development and implementation of a separate transportation management plan encompassing the UIR. The plan will identify needed access roads and the standards for road construction and maintenance, consistent with the natural resources and cultural/social values. (BIA, Draft Range Management Plan)

Goal: Working with CTUIR Public Works, ensure legal access to all Tribal Allotments

Objective: Encourage a transportation analysis to address needs

Objective: Close roads not needed for resource management purposes or access by Tribal members

Objective: Establish construction and maintenance standards for both permanent and temporary roads

Standards and Guidelines

G13: Stream road crossings must follow standards listed in the CTUIR Standards to the Water Code.

G14: Road access will be adequate to accomplish commercial, resource, and protection management activities as well as subsistence use

G15: Roads will be operated and maintained according to management emphasis and maintenance levels appropriate to planned uses and activities, safety, economics and impacts on land and resources.

Tribal, Public, and Inter-Governmental Relationships Component

Background

Implementation of the AMP and the utilization of local and national incentive programs require constructive relationships between the Tribe and governmental agencies. Strained relationships have developed from management impacts between trust and non-trust land. Cooperation between agencies, the BIA, and the Tribe will bridge communication barriers and aid in solving challenges within the reservation.

Management of a large resource base such as the reservation without consistency will result in yearly compounding problems and mismanagement of vital resources. Without good communication, consistency across the reservation will be difficult to accomplish.

Goal: Ensure regular communications with all agencies and institute open door policies

Goal: Improve coordination with BIA, Tribes, and USDA and streamline methods to assist owners and operators in utilizing Department of Agriculture Incentive Programs

Goal: Improve communication between fee and trust land managers to coordinate consistent land management across the reservation

Objective: Establish regular lease conferences for landowners and farmers

Objective: Establish a system to aid operators in gaining compliance with applicable laws, codes, and regulations

Objective: Communicate compliance/enforcement issues with all entities

Objective: Communicate resource management changes using the Tribal and local newspapers and meetings

Objective: Notify and request the participation of Tribal and fee landowners prior to the implementation of management practices

Standards and Guidelines

S61: Lease conferences will be available for landowners and farmers once every two years informing them of changes, guidelines, and updates. Lease conferences will consist of the following: Appraisals/Negotiations, new farming techniques, new farm programs, updates to the leasing procedures, money distribution, CFR codes and regulations, laws, regulations and

policies of leases, range practices, leasing, acquisition and disposals, probates and right-of-ways, and policy of operations.

S62: Since regulations and updates will occur regularly between lease conferences, updates will be printed in the Confederated Umatilla Journal, East Oregonian, letters and any other possible means to communicate updates to leasing protocols and changes to, or listing new farming programs, methods etc.

S63: Tribal staff and governmental agencies will establish biennial meetings to discuss changes, concerns, or problems on the Reservation.

S64: Regular communication between Tribal Farming Enterprise and the CTUIR DECD Land Program shall occur to alleviate extended periods between the lease going under advisement and the final decision.

Lease Compliance Component

Lease compliance occurs collaterally by several positions within the CTUIR DECD Land Program and Natural Resource Range, Agriculture and Forestry Program. Included in staff position descriptions and annual work plans are mandated resources focused on implementing trespass and lease violation procedures and ensuring the execution of leasing and permitting procedures according to federal and Tribal laws and policies. Special attention must be given to trespass and contract violations as investigations and violation reports form the basis for collection of damages, penalties and recovery of cost associated with implementation.

Goal: Leases will be completed in a timely manner and will provide effective means to ensure compliance with Tribal and Federal laws pertaining to land use

Objective: Identify and utilize a lease compliance officer

Objective: Communicate all compliance/enforcement issues with all entities

Objective: Develop an education program to educate owners and operators of management and compliance issues.

Standards and Guidelines

G16: Work to establish funding or maintain funding to carry out management plan.

S65: Enforcement, trespass issues, and lease compliance will follow CFR code 25. Standards for compliance listed on each lease will contain the attributes of 25 CFR and are the responsibility of the RAF and DECD Land Program staff.

Management Strategy

The CTUR and BIA through its delegated responsibilities and Self Governance Compact would regulate farming practices to the extent of reducing wind and water erosion and increasing soil fertility and enhancing water quality. Utilization of RUSLE2 will aid in mandating practices that reduce loss of soil resources to erosion.

Through implementation of leasing procedures tillage limits shall be incorporated into new or renewed leases that prevent upland soils to be exposed to erosive forces. Additionally, promotion and implementation of riparian zone enhancement activities will enhance water quality and riparian habitat.

Utilizing a cooperative relationship with BIA, RAF and DECD shall work to find opportunities to get idle land back into production through contract or owner in use, develop suitable vegetation for idle land that provides a resilient, habitat enhancing composition or incorporate idle land into other land uses.

Chapter IV – Implementation of the Agricultural Management Plan

Introduction

The management goals and objectives described in Chapter III--Agricultural Management Direction, provide the driving force for project selection and scheduling. Implementation of the Agricultural Management Plan occurs through identification, negotiation, scheduling, and implementation of practices that meet the management direction adopted by the BIA and CTUIR. Regulation of upland crop residue requirements and instillation of riparian vegetation buffers forms the thrust of management activities associated with enhancing agricultural resources. Riparian enhancement can be achieved through contracts with local farmers or assistance from CTUIR. Implementation of the management direction is key to translating the stated goals, objectives, and management requirements into results on the ground. The AMP allocates staff assistance for navigating the complex maze of applying government and non-government programs to enhance the agricultural environment while offsetting the cost of lost production.

Implementation guidance provides for development of multi-year programs to address: (1) development of agriculture inventory to identify and respond to various conditions of agricultural resources, (2) identification of areas with known erosion and water quality issues, (3) working closely with landowners and farmers to gather consensus on management prescriptions and economic impacts (4) overcome economic constraints associated with implementation of restoring riparian function (5) identification of funding mechanisms to implement management strategies, (6) prevention of the unauthorized use of agricultural resources, and (7) the monitoring and evaluation process.

The BIA and CTUIR will implement the Agricultural Management Plan through development and implementation of annual work plans and budgets.

Inventory Land Tracking Database

The Trust Asset & Accounting Management System (TAAMS) establishes tracks and manages various contracts, such as surface area, mineral, rights of way and range; automates invoicing, collections and revenue distributions using payment information. TAAMS provides for customized reports in areas such as land utilization, title status, owner inventory, lands available for leasing, chain of title history and distribution of income.

While TAAMS provides the system of record for leasing of Indian agricultural land on the UIR information and studies on farming practices, crop yields, erosion and water holding and filtration process needs to be documented. RAF has instigated development of an agricultural inventory to store and analyze farming data that informs landowners and regulatory processes that have bearing on leasing of agricultural lands. Development of such a database is awaiting staff availability and funding.

AMP Administration

Uplands

The CTUIR and BIA shall require each new lease beginning after the approval of this plan to include a RUSLE2 analysis with crop plans. RUSLE2 considers soil characteristics, farming practices, landscape characteristics and climate factors to predict long term soil loss. Cropping practices meeting a predicted zero or positive (± 0.05) Soil Conditioning Index (SCI) will be required on all agricultural lands regardless of HEL status. The required residue levels in NRCS Conservation Plans shall be enforced on all HEL. The CTUIR and BIA through its leasing of agricultural lands has the sole authority through crop plan provisions to enforce conservation compliance on Indian Trust land and through relationships with the Oregon Department of Agriculture or CTUIR code amendments shall work towards enforcing requirements on non-Indian fee land.

The CTUIR shall work to develop a constructive relationship with the Oregon Department of Agriculture to promote compliance with upland and riparian farming standards to provide a compliance consistency amongst land ownership classifications.

The management plan requires all farming operations to protect the soil during critical erosion periods; defined as December 1 thru March 1. Utilization of Federal and Tribal conservation programs will optimize productivity of the resources and offset the costs while implementing the requirements.

Riparian

Installing permanent vegetation (buffer) in riparian management zones (RMZ) within one-quarter (¼) of the total RMZ width on Strahler Modified Stream Orders 1-4 will be voluntary for the ten years from the final approval of this plan. RMZ maps are readily available on the CTUIR GIS network. Streams with known water quality issues shall be targeted for implementation first.

For the duration of the plan entry into the established inner RMZ will be discouraged except in designated crossing areas and for the purposes of improving the function and condition of the riparian area and stream channel. Mechanically improving stream channels must be planned and permitted in coordination with WRP. At the end of the ten-year voluntary period, this requirement will be re-evaluated. Throughout plan implementation, the Soil Conservationist will define and promote the appropriate buffer standards relating to equipment usage, plant densities, and types within the conservation plan using available technical guides.

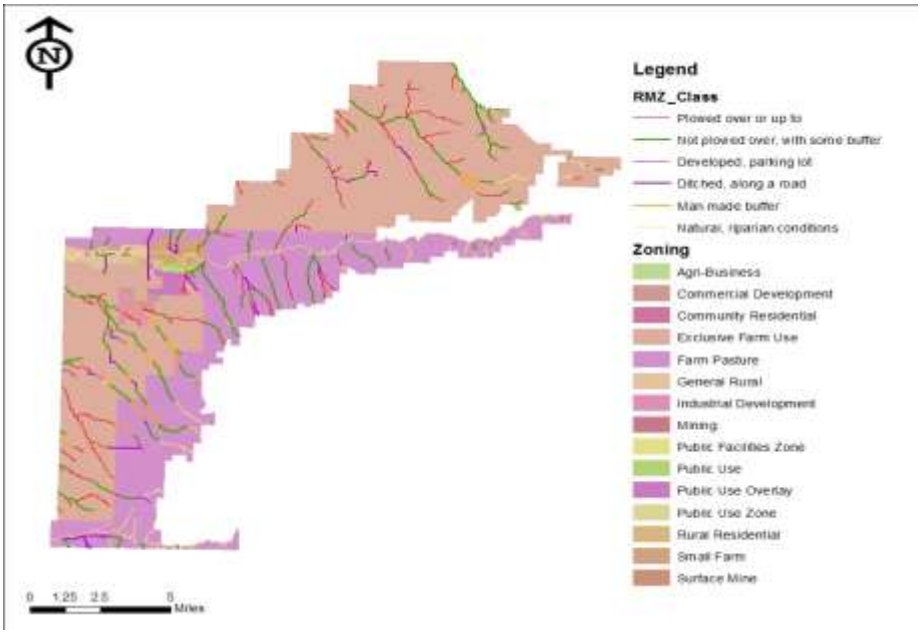
Table 4-1: Desired buffer Widths:

Stream Order	Total Buffer Width	1/4 RMZ Width
0 Order	0 feet	0 feet
1st Order	72 feet	18 feet
2nd Order	150 feet	38 feet
3rd Order	224 feet	56 feet
4th Order	300 feet	75 feet

Ten Year Targets

During the planning process an extensive effort was made to profile the correct RMZ class for each stream of a stream order greater than 0 on the reservation. After developing and proofing the dataset for correct RMZ_Class and stream order typing, the dataset was clipped to the AgZones by a query of "SO2012" > 0 AND "RMZ_Class" > 0. This gave the dataset SOAg. This dataset has all the streams regulated by the AMP. The dataset established 6 RMZ classes.

1 = Plowed over or up to
2 = Not plowed over, with some buffer left
3 = Developed, parking lot, house
4 = Ditched, along a road
5 = Man made buffer
6 = Natural, riparian conditions



In order to calculate the amount of acres in the riparian management zone, a field was created in the dataset called RMZ_Meters. This gave the riparian management zone distance in meters from the stream line. The RMZ is 75 feet x Stream Order x .25 to identify ¼ of the RMZ width. This is the distance for implementation of buffer's along the stream lines, or referred to as the RMZ. Buffers with this distance for each stream were created.

Summary statistics for the RMZ buffer acreage were calculated.

There are 198 linear miles of stream in the SOAg dataset. There are a total of 2105 acres in the RMZ along these streams. Summary of those acres by stream order are below.

SO2012	SUM_ACRE
1	509.04
2	534.32
3	168.32
4	30.08
5	610.57
6	252.52

In order to quantify how much area is currently in a buffer, the GIS Program digitized buffer areas around streams which had a RMZ class of 2, that is not plowed over with some buffer remaining. Imagery from 2010 and 2011 from MSN and Google were used to identify areas around streams which are not included in agricultural practices. This dataset was called CurrentBufferArea. Streams with an RMZ class of 5 or 6, man-made buffer or natural riparian conditions would already have a buffer and were not considered. While streams with an RMZ class of 1 that is streams plowed over or up to would not have any buffer type and were also not considered to have a current buffer area. There are **391 acres with some buffer type remaining**. There are a total of 2105 acres in the RMZ across the reservation. There are 65 miles of RMZ in class 2 streams, which are those with some buffer remaining. There are a total of 198 linear miles of stream across the planning area. Summary of miles of stream by RMZ Class are below.

In order to calculate total area of RMZ by land ownership class, the SOAg was intersected with the RMZbuffer. Statistics were calculated by ownership type.

RMZ_CLASS	SUM_MILES
1	50.54
2	64.61
3	5.36
4	15.08
5	9.46
6	52.64

OWNERSHIPS	SUM_ACRES_GIS
A	943
F	993
T	70
TF	91

Statistics were calculated by ownership type and RMZ class as well as stream order and ownership. There are 6 RMZ_Classes and 5 stream orders found in this area.

1 = Plowed over or up to
2 = Not plowed over, with some buffer left
3 = Developed, parking lot, house
4 = Ditched, along a road
5 = Man made buffer
6 = Natural, riparian conditions

SO2012	OWNERSHIPS	SUM_ACRES_GIS
1	A	192
1	F	267
1	T	15
1	TF	35
2	A	196
2	F	294
2	T	24
2	TF	18
3	A	46
3	F	108
3	T	7
3	TF	3
4	A	21
4	F	5
4	TF	4
5	A	327
5	F	227
5	T	25

RMZ_CLASS	OWNERSHIPS	SUM_ACRES_GIS
1	A	113
1	F	182
1	T	10
1	TF	14
2	A	195
2	F	302
2	T	10
2	TF	14
3	A	13
3	F	29
3	T	0
3	TF	3
4	A	27
4	F	59
4	T	4
4	TF	8
5	A	4

RMZ classes 2, 4 and 5 will be targeted for buffer voluntary buffer instillation. Furthermore identifying and prioritizing RMZ classes 2, 4 and 5 with known water quality problems will narrow the focus and provide staff direction for implementation.

Lease and Permit Administration

For trust land farm contracts may be limited to 5-year duration in the event that lessees or permittees cannot or will not establish and maintain voluntary ¼ RMZ buffers. Staff will utilize leasing regulations to promote incentives that reward proper application of upland and streamside conservation measures. Utilizing regulations may include:

1) Limiting contracts to shorter periods to enable CTUIR staff to plan and implement buffers within the management plan period.
2) Extend contracts for farmer/operators who agree to install and maintain buffers.
3) Allow leasing of buffer areas to willing conservation program participants.

Any variance to standards must be stated in writing and approved by CTUIR and BIA. Most likely approval of variances will be made by the Umatilla Agency Superintendent and Soil Conservationist.

Education and Outreach

The CTUIR will establish an educational outreach and promote programs with the goal of creating at minimum permanent vegetation buffer at least one-quarter (¼) of the RMZ width on trust land. Further RAF will explore the means to apply the same minimum buffers on non-Indian fee lands. The educational program will utilize promotional materials and activities targeting landowners and operators and encouraging the adoption of the voluntary buffer zones. CTUIR have dedicated staff to develop and implement projects that provide adequate riparian vegetation while minimizing the economic impacts of lost production within riparian management zones.

Non-Indian Fee Land

The Oregon Department of Agriculture, Administrative Rules (OAR 603-095-0320) states *"Operational boundaries for the land base under the purview of these rules include all lands within the Umatilla Agricultural Water Quality Management Area in agricultural use and agricultural and rural lands which are lying idle or on which management has been deferred, with the exception of public lands managed by federal agencies (e.g. U.S. Forest Service, U.S. Fish and Wildlife Service), lands which make up the Reservation of the Confederated Tribes of the Umatilla, and activities which are subject to the Forest Practices Act."* Pursuit of comparable CTUIR standards and guidelines will only be accomplished with a productive and equitable relationship with state agencies charged with enhancing the agricultural resource. Inclusion of standards into the CTUIR Land Development Code was not included in the scope of the plan but may become necessary to meet the desired conditions for the agricultural resource. Inclusion of standards into the CTUIR Water Code seems to the best fit given the complex array of implications of non-point source pollutants. A voluntary ten year implementation plan determines what can be achieved under voluntary participation in conservation programs aimed at preventing non-point source pollutants from reaching water ways.

Monitoring and Detection

Monitoring and evaluation ensure achievement or an upward trend toward achieving the Standards in Elements. The appropriate CTUIR program(s) will share monitoring responsibilities. Physical and biological monitoring provides the basis for adapting management for resource benefit and documenting potential lease/permit violations. Summary reports shall be completed periodically to determine if management goals are upward trending or met. Part of the adaptive management requires monitoring results to dictate management changes. If monitoring results identify measureable need for change managers may address change regimes if staffing and funding allow.

Trespass and Lease Violations

Trespass and lease violation shall be monitored by CTUIR Department of Natural Resources and DECD Land Program staff. Upon discovery staff will complete investigations that gather all information outlined in 25 CFR. When completed all materials and documentation shall be turned over to the Umatilla Agency Superintendent for enforcement. Enforcement is included in

BIA's inherit federal functions on Trust property. Any other trespass or contract violations occurring on fee lands will be provided to the Department of Public Safety, Umatilla Tribal Police for enforcement. Discovery, investigation and enforcement are outlined in each BIA lease/permit and 25 CFR.

Tribal Codes and Permits

Land use must follow Tribal laws as well as Federal and pertinent State laws. The Land Development Code outlines many of the permitted activities on the Reservation. The CTUIR Water Code lays out rules and permit requirement for water use, riparian vegetation alteration and CTUIR's anti degradation policy. Ground disturbing activities must be coordinated with CTUIR's Cultural Resources Protection Program. CTUIR has been granted authority through the Tribal Historic Preservation Office to coordinate mitigation measures that may be necessary for protection of historic feature on the UIR. Finally CTUIR has been granted Treatment as a State (TAS) for water and air quality monitoring and limited enforcement. Negligent use of natural resources may result in requests of the Environmental Protection Agency (EPA) assistance with enforcement of provisions of the Clean Water Act and Clean Air Act.

Organization and Funding

Re direction of personnel will occur to ensure compliance and promote participation in federal, state, and local conservation projects and programs.

Personnel required to facilitate this plan include:

- One (1.0 FTE) Soil Conservationist II to analyze field data, develop cropping plans, respond to complaints, monitor for lease compliance, optimize production, assist other land managers (Tribal and other organizational natural resource entities), and identify and promote use of tracts that have or may fall idle.

- A second (1.0 FTE) Watershed Coordinator to promote and develop conservation plans, assist in the implementation of conservation efforts, solicit and facilitate incentive programs, provide technical assistance and educational outreach to landowners and operators, monitor stream conditions, and monitor buffer compliance.

- One (0.5 FTE) Soil Conservation Technician II to assist in developing buffer plans, the implementation of conservation efforts, provide technical assistance and educational outreach to landowners and operators, and monitor buffer compliance.

In conjunction with 2.5 FTE in DNR 2 FTEs from DECD Land Program will work together to ensure lease implementation and compliance occur in a timely and efficient manner and to inform landowners and tenants of the requirements of this Management Plan and the conservation practices to be applied.

Table 4-2: Estimated staff and costs of implementation.

Description	Cost
Personnel	
Soil Conservationist FTE (Existing)	$ 50,000
Watershed Coordinator FTE (Existing)	$ 42,000
Soil Conservation Technician .5 FTE (Existing)	$ 17,000
Fringe Benefits (35%)	$ 24,920
Travel and Training	$ 6,000
Vehicles (Two)	$ 12,000
Communications & Office Expenses	$ 2,500
Supplies and Materials	$ 3,500
Equipment	$ 6,000
Grand Total	**$163,920**

Revision Time Frame

At the conclusion of the ten-year voluntary period, the plan will be re-evaluated and updated to reflect changes in farming practices, changes in agricultural economic conditions and progress toward meeting water quality standards. At such time, the BOT will choose to continue with the voluntary buffer adoption, modify the existing buffer implementation program, begin mandatory buffer implementation, or cease the buffer implementation program.

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Glossary

A

Adaptive Management

A type of natural resource management in which decisions are made as part of an ongoing process. Adaptive management involves implementing, monitoring, and evaluating management approaches. Results are used to modify future management approaches incorporating new knowledge based on scientific findings.

Agriculture

The science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products

Allotted Trust Land

Land where the legal title is held by the United States and the beneficial or equitable title is held by an individual Indian allottee or his or her heirs.

Anadromous Fish

Fish that hatch and rear in freshwater, migrate to the ocean to grow and mature, and migrate back to freshwater to spawn.

Anthropogenic

Of, relating to, or resulting from the influence of human beings on nature

Arable Land

Land suitable for farming.

B

Beneficiary

The recipient for whose benefit property is held in trust.

Biological Diversity

The variety and variability among living organisms and the ecological complexes in which they occur.

C

Colluvium

Soil material and/or rock fragments moved by creep, slide, or local wash and deposited at the base of steep slopes.

Crop Residue

Plant materials that remains after a marketable part is taken, separated, or designated or after the completion of a harvest

Cultivation

To prepare or prepare and use for the raising of crops.

Cumulative Effects

Impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions.

D

Direct Effects

Impacts on the environment that are caused by the action and occur at the same time and place.

Disturbance

Refers to events that alter the structure, composition, or function of terrestrial or aquatic habitats.

E

Ecosystem

A complete interacting system of living organisms and the physical environment in which they reside.

Endangered Species

A fish, wildlife or plant species officially designated by NOAA Fisheries or the U.S. Fish and Wildlife Service as having its existence endangered over its entire range because its habitat is

threatened with destruction, drastic modification, or severe curtailment or because of overexploitation, disease, predation, or other factors.

Erosion

To wear away by the action of water, wind, or glacial ice.

F

Floodplain

Relatively level areas next to rivers or streams which are covered with water when the river or stream overflows its banks.

G

Guideline

An action, priority, process, or prescription that may be useful in meeting management objectives.

H

Highly Erodible Land

Erodible land is cropland, hayland or pasture that can erode at excessive rates. It would contain soils that have a soil survey erodibility index of eight or more.

Historic Range of Variability (HRV)

The natural fluctuation of ecological and physical processes and functions that likely occurred prior to European settlement.

Hydrologic Unit Code (HUC)

A hierarchical coding system developed by the U.S. Geological Survey to identify geographic boundaries of watersheds of various sizes.

I

Idle Land

Arable land not under rotation that is set at rest for a period of time ranging from one to five years before it is cultivated again

Indirect Effects

Impacts on the environment that are caused by an action and are later in time or further removed in distance but are still reasonably foreseeable.

Inter-disciplinary Team

A group of people that consists of specialists from several fields combining skills and resources to present guidance and information.

Irretrievable Commitment

The lost production or use of renewable resources such as timber, forage, or wildlife habitat.

Irreversible Commitment

The use of non-renewable resources such as fossil fuels, cultural resources, and/or the conversion of land from one use to other uses.

Issue

A matter of controversy, dispute, or general concern over resource management activities or land uses.

L

Large Woody Debris

Pieces of woody material on the ground derived from tree limbs and boles in various stages of decay generally having a minimum diameter of 12 inches at the small end and a minimum length of 5 feet in dry and moist forests and a minimum diameter of 8 inches at the small end and a minimum length of 8 feet in cold forests.

Loess

Fine grained material dominantly of silt sized particles deposited by wind.

Long Term Sustained Yield

The yield of wood fiber that a forest can produce continuously from a given intensity of management; a balance between growth and removal by harvest.

M

Mesic

Of, characterized by, or adapted to a moderately moist habitat.

Miocene

Of or belonging to the geologic time, rock series, or sedimentary deposits of the fourth epoch of the Tertiary Period, characterized by the development of grasses and grazing mammals.

N

Net Present Value

The difference between the sum of the income from the harvest of timber over time and the sum of the management costs over time where future values are discounted to the present.

Nitrogen Oxides

A group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts, produced from high temperature combustion of fossil fuels. Many of the nitrogen oxides are colorless and odorless.

Noxious Weeds

Is a plant species that has been designated by country, state, provincial, or national agricultural authority as one that is injurious to agricultural and/or horticultural crops, natural habitats and/or ecosystems, and/or humans or livestock.

O

Ozone

A toxic blue unstable gaseous form of oxygen with each molecule consisting of three atoms produced by electric discharge or exposure to ultraviolet light.

P

Particulate Matter

Solid particles or liquid droplets suspended or carried in the air.

Pesticide
Substances meant for preventing, destroying or mitigating any pest.

pH

A measure if the hydrogen ion active concentration in aqueous solutions (ph =-$\log_{10}(H^+)$). Acidic solutions have a pH less than 7, neutral solutions have a pH of 7 and basic solutions have a pH greater than 7.

$PM_{2.5}$

Particulate matter that measures 2.5 micrometers or less in diameter.

PM_{10}

Particulate matter that measures 10 micrometers or less in diameter.

R

Redd

Spawning nest made by a fish in the gravel bed of a river or stream.

Residuum

Unconsolidated weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place**.**

Riparian Areas

Lands adjacent to creeks, streams, and rivers where the vegetation is strongly influenced by the presence of water.

Riparian Management Zone (RMZ)

An area of land on each side of a stream in width equal to 75 feet times the stream order in which management objectives are different from adjacent upland areas.

S

Seral

Stages that plant communities go through during succession.

Stream Morphology

The form and structure of streams.

Stream Order

A hydrologic system of stream classification in which each small unbranched tributary is a first order stream. A second order stream consists of two first order streams and so forth.

Succession

A predictable process of changes in the structure and composition of plant and animal communities over time.

T

Threatened Species

A fish, wildlife or plant species officially designated by NOAA Fisheries or the U.S. Fish and Wildlife Service as having its existence threatened in a localized area because its habitat is threatened with destruction, drastic modification, or severe curtailment or because of overexploitation, disease, predation, or other factors.

Tillage

The agricultural preparation of the soil by mechanical agitation of various types, such as digging, stirring, and overturning.

Total Maximum Daily Load (TMDL)

Written plans and analyses established to insure a water body will attain and maintain water quality standards.

Tribal Trust Land

Land where the legal title is held by the United States and the beneficial or equitable title is held by the Confederated Tribes of the Umatilla Indian Reservation.

Turbidity

The relative level that suspended matter interferes with the passage of light through water.

U

V

Volatile Organic Chemicals

Chemicals of an organic nature (containing hydrogen, oxygen, and carbon) which readily volatilize or travel from the water into the air.