Dean Creek Habitat Projects
Environmental Assessment

EA OR 125-04-08

Chapter 1.0 Purpose of and Need for Action

Chapter 1 Introduction

1.1

The purpose of this Environmental Assessment (EA) is to analyze a proposed action designed to solve some habitat and infrastructure problems at the Dean Creek Elk Viewing Area (DCEVA). The DCEVA is located in Douglas County, three miles east of the City of Reedsport, Oregon on Highway 38 and is jointly managed between the Oregon Department of Fish and Wildlife (ODFW) and the Bureau of Land Management (BLM). The BLM and ODFW actively manage DCEVA to provide for a viable elk herd through high quality elk habitat, for public viewing opportunities and for public educational opportunities. A map showing the general location of the project area is located in Appendix 2.0 along with site specific project maps.

The proposed actions would implement projects acknowledged in the1993 Dean Creek Elk Viewing Area-Activity Management Plan (DCEVAMP) and the 1998 Amendment to that plan. The proposed actions are designed to meet a variety of objectives outlined in the plan. These include:

- Pasture management which would include noxious weed control, prescribed burning, fertilizing, mowing, liming, plowing and seeding.
- Maintenance of wetland habitats for waterfowl, shorebirds and other watchable wildlife species through water control structures.
- Enhancement of riparian areas for the benefit of wildlife.
- Provide upland meadow habitat for elk forage.
- Maintenance of drainage structures to enhance pasture management.
- Improving conditions for fish passage within the DCEVA.

1.2 Tiering

This EA is a supplement to EA OR 120-93-02 Dean Creek Elk Viewing Area Activity Management Plan and EA OR 125-96-14 Dean Creek Elk Viewing Area Amendment to the 1993 Management plan. The EA is tiered to and in conformance with the *Coos Bay District Management Plan* and its Record of Decision (USDI BLM 1995); which is in conformance with the *Final Supplemental Environmental Impact Statement* (FSEIS) *on Management of Habitat for Late Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl (Northwest Forest Plan [NFP])* and its Record of Decision (Interagency 1994). It is also tiered to the *Final Supplemental Environmental Impact Statement for Amendment to the Survey and Manage, Protection*

Buffer, and other Mitigating Measures Standards and Guidelines (Interagency 2000) as well as the Coos Bay Integrated Noxious Weed Program (EA OR 120-97-11).

In addition to the documents cited and tiered to above, the planning of this project drew from the ideas, information, and recommendations from the *Lower Umpqua Watershed Analysis* dated September, 1997.

These documents are available for review at the Coos Bay and North Bend Libraries, the Coos Bay District Home Page at http://www.or.blm.gov/coosbay, and the Oregon State Office of the BLM in Portland, Oregon.

The Analysis File contains additional information that was used by the Interdisciplinary Team (IDT) to examine impacts and alternatives and is herby incorporated by reference. This file is located at the Coos Bay District Office.

1.3 Decisions to be Made

This EA will assist the decision making process by assessing the environmental and human effects resulting from implementing the proposed projects and/or alternatives. This EA will also assist in determining if an environmental impact statement (EIS) needs to be prepared or if a finding of no significant impacts (FONSI) is appropriate. The decision maker may accept the proposed actions, reject the proposed actions, or modify elements of the proposed actions. As previously mentioned, the projects were drawn out of the Dean Creek Elk Viewing Area – Activity Management Plan, which outlined the actions, but never formally analyzed their impacts. This document will provide the decision maker with the information necessary to make a balanced decision that meets a host of needs. At this time, funding has not been secured for any of the proposed actions.

1.4 Issues and Concerns

A variety of issues and concerns were raised during the initial scoping of this project. These issues listed below came from both the interdisciplinary planning team as well as the public. All of these issues were considered during the planning of the proposed projects. Issues 7-11 were identified by the team as issues that will be addressed in a future EA (beyond the scope of this project), or did not merit further consideration. Appendix 1.0 (considered but eliminated) provides additional information about these issues.

1. Pastures are flooding and staying flooded longer than what was occurring under private ownership.

2. Coho salmon swam through the tidegate near the Hinsdale Kiosk during the fall of 2002 and spawned in Koepke Creek. Juvenile coho over-

summered in a spring/seep area at the base of the slope where Koepke Creek flows into the pasture.

3. The quality of forage has decreased and reed canary grass (*Phalaris arundinacea*) is beginning to dominate the viewing area.

4. Very little upland forage opportunities exist on federally managed lands, forcing elk to relocate on private land.

5. A buildup of thatch material has prevented full recovery of grasses in mowed pastures and has reduced the extent and vigor of quality elk forage.

6. The elk viewing area should be managed in a more holistic manner, taking into consideration the needs of a variety of species such as song birds.

7. Consider using cattle as a tool for "forage conditioning" during the wetter months when the ground cannot support mowing equipment.*

8. Consider a land exchange with willing property owners to the south to more effectively manage the overall habitat of the area.*

9. Consider increasing the mowing on the west end to improve foraging habitat for the elk.*

10. Koepke and Hinsdale Slough need to be dredged and maintained to provide proper pasture drainage. *

11. Removing bushes along the Dean Creek dike will lead to dike instability. Consider leaving the bushes to preserve dike stability.*

12. Consider using herbicides to control Himalayan blackberry.

* See considered but eliminated in Appendix 1.0

1.5 Scoping Summary

The principal purpose of scoping is to identify the public's site-specific resource concerns, the identification of unique or sensitive features in the project planning area, and the identification and articulation of issues and concerns specific to the project area that should be considered during the project analysis. During December of 2003 letters and/or e-mails were sent to adjacent property owners, people who have been involved with previous BLM projects planned for or implemented in this area, have a special interest in DCEVA, or have requested to be informed about projects of this type. In addition, a public notice was printed in the local newspaper (The World, 12/20/03) and a scoping notice was published on the Coos Bay BLM website. A total of 71 letters were

sent. In response to the scoping request the BLM received three e-mails, two phone calls and one letter. Items 6 through 12 of the *Issues and Concerns* section were identified by the public.

1.6 Permits and Consultation

Some of the proposed actions may require additional federal and state permits and/or consultation before implementation. During the summer of 2001 the BLM received a letter from the Oregon Division of State Lands (DSL) denying "agricultural exemption" status for the DCEVA for activities that remove or fill greater then 50 cubic yards in a wetland. The state now requires that activities such as pasture renovation (plowing/tilling) that exceed this threshold would need to go through the permitting process. As of this date, wetland delineation has not been conducted at Dean Creek.

In 2001, two new tidegates were installed by the Oregon Department of Transportation (ODOT) to replace gates that failed and inundated a portion of the DCEVA with river water. In addition, ditches in the flooded area were cleaned during the summer of 2003. At this point, the interdisciplinary planning team is waiting for the area to reach equilibrium with the new drainage system. In the interim, the Bureau has applied for permits from the DSL and the Army Corp of Engineers for pasture renovation. Often associated with these permits is additional mitigation. This additional mitigation will not be analyzed under this document but most likely would reduce some of the environmental effects as outlined in Chapter 4.

In addition, during the winter of 2002/2003 coho salmon (*Oncorhynchus kisutch*) swam through the tidegate located at mile post 3.65, into the ditch system, across a flooded pasture and spawned in Koepke Creek at the far southern end of the viewing area. Prior to this event the Bureau was not aware of coho using this stream for spawning. Nevertheless, since this event occurred the ditch and stream are now considered to be seasonally "occupied" habitat; therefore the Bureau will be consulting with the National Oceanic and Atmospheric Administration (NOAA) on those proposed actions that may affect the species that are not currently covered under a biological opinion for routine programmatic activities such as culvert replacements if coho salmon are listed at the time the project is scheduled to be implemented.

Chapter 2.0 Proposed Action and Alternatives

2.1 Alternative 1: The No Action Alternative

In this EA document, the "no-action" alternative is defined as not implementing any aspect of the proposed action alternative. Defined this way, the no action alternative also serves as a baseline or reference point for evaluating the environmental effects of the action alternative. Each proposed action will be analyzed/compared with the "no-action" alternative.

The "no action" alternative is not a "static" alternative. Implicit in it is a continuation of the environmental conditions and trends that currently exist in the project area. This includes trends such as flooding, salt water encroachment, proliferation of reed canary grass, and diminishing quality of elk forage.

2.2 Alternative 2: Proposed Action

Introduction

One action alternative is being proposed and analyzed. This action is composed of many components/projects. In designing the proposed action a host of other projects were considered but eliminated. These projects are described in Appendix 1.0. Projects were rejected for several reasons; they were beyond the scope of the current management plan, they did not meet the mission of the area, or were cost prohibitive.

The description of each of the projects is organized and presented based on broadest "types of action" to the smallest type of action (e.g., pasture management versus culvert replacement). While the actions are presented as discrete projects, the interrelationships between them must be kept in mind, particularly in considering the overall effects of the alternative.

The interdisciplinary team presents these projects to meet the management goals outlined in the Dean Creek Elk Viewing Management Plan and the issues and concerns listed in Section 1 (1.4). Some of the goals outlined in the plan are project specific (i.e. annually seed 20-acre blocks of pasture), while other goals are broad based (maintain water control structures). The intent of the proposed action is to fill in the what/when/where and how questions to meet the needs identified. It is up to the discretion of the decision maker as to what projects should be pursued and what projects should be rejected, based on needs, funding, public concern, environmental impacts, and a host of other considerations.

Project design criteria (PDCs) are included in some elements of the proposed action to reduce anticipated adverse environmental impacts which might stem from project implementation. In addition to the PDCs listed under the action, the Best Management

Practices (BMPs) in Appendix D. of the Coos Bay District Record of Decision and Resource Management Plan would strictly be adhered to. The BMPs are designed to further protect natural resources such as water and soil.

Action 1: Pasture Management

1) Objectives of pasture management

Provide high quality elk forage and control reed canary grass

2) Description of the proposed project

The project was crafted to address the concerns that elk forage quality is decreasing in the project area (issue three). The project would involve plowing, seeding, liming, and fertilizing up to 20 acres annually to improve forage for a variety of wildlife species (elk, deer, bear, Canada geese etc.). Plowing and seeding would be conducted in areas where reed canary grass is the dominate grass. Plowing would be done as early in the spring as possible to expose the rhizomes of the plant to desiccation. Additional disking and rototilling would be done throughout the summer to further expose and dehydrate the rhizomes. Seeding would take place during the late-summer to take advantage of fall rains. The seed mix would be a combination of native as well as non-native grass/forbs. A vegetated buffer strip, a minimum of 20 feet in width would be maintained between plowing activities and all surface water (ditches, streams, sloughs, ponds and saturated areas). Soil amendments would be applied if soil tests indicate an imbalance or nutritional deficit. Application amendments will follow the best management practices identified by the manufacturers. Mowing will be conducted twice annually prior to the development of seed heads on reed canary grass that persistent at the site. Map 2 and 3 in Appendix 2.0 show the location of the proposed pasture management.

Numerous stumps are present in the Sitka spruce stand adjacent to Koepke Slough and Hwy 38. The stumps are the result of hazardous trees being removed and/or mature trees being blown over. Under this proposal the stumps would be removed using a backhoe and tractor. The stumps would be piled and burned when environmental conditions allow for safe burning. The removal of stumps will allow for more efficient pasture management.

Action 2: Prescribed Burning

1) Objectives of prescribed burning

Prescribed burning would be used to reduce the buildup of grass thatch, recycle nutrients, stimulate plant growth, and help control diseases and pests.

2) Description of the proposed project

The intent of this project is to address the concerns that thatch buildup is preventing the full recovery of grasses in areas, and limited the reducing quality of elk forage (issue five). Prescribed burning would be done with strict adherence to an approved prescribed

burn plan specific to the proposed action. The burn plan would meet current Bureau of Land Management 9214-1 Prescribed Fire Management Guidelines and have appropriate agency administrator(s) approval. All burning would take place in compliance with current Oregon Smoke Management Guidelines.

Pasture blocks identified for treatment would use pre-existing natural barriers such as ditch lines, sloughs or roads. These existing features will serve as fire breaks and will help to minimize the need for additional fire lines to be constructed. Where natural barriers are not available fire lines would be constructed either by hand, with a tractor and disc, or with fire engines to construct a "wet" line. Pasture blocks selected for burning would be mowed at least two weeks in advance of planned burning to allow for cut vegetation to dry.

If conditions necessitate, a second mowing or raking may be necessary to "stir" cut vegetation to allow for additional drying of fuel.

Broadcast burning would be the most desirable method of treatment. Ignition would be accomplished by hand using various ignition devices such as drip torches, propane burners, hand-placed or pistol launched flares and fusees.

Windrowing of cut vegetation (see following pictures) prior to burning would also be an acceptable method of treatment though additional tractor work may be necessary and the actual surface area that will be directly affected by fire is reduced. However, the results of an experimental burn done at the EVA in July of 2002, showed that windrow burning produced the best results for burning through the heavy thatch layer. This is attributable to the duration of burning which allowed for deeper penetration of fire. In some areas, mineral soil was actually exposed after windrow burning.

Depending on current and expected weather conditions, additional mop-up of burned areas may be necessary post-treatment to ensure fire does not escape the treatment areas and to reduce potential impacts from residual smoke.

If it is deemed that the location of the prescribed burn and wind patterns may cause smoke drift across State Highway 38 leading to obscured visibility, then Project Design Feature 10 would be implemented to mitigate potential impacts. This PDF includes

traffic control measures which could include but not limited to signs, flaggers or other highway control devices.

Action 3: Dike Repair

1). Objective of the proposed dike repair

The intent of this project is to address the concerns identified in issue one, that pastures are staying flooded longer then what was happening under private ownership. Dike as well as ditch maintenance is critical to insuring that standing water does not accumulate on the pastures, leading to a shift of plant composition and a decrease in forage quality.

2). Description of the Proposed Project

Option 1

The dike repair would focus on the southern end of the Hinsdale Slough dikes that were breeched during the floods of 1996-97. Damage from that flood, coupled with damage from animals burrowing into the banks and tree roots have created a situation where the structural integrity of the dike is in question. This option would remove some of the alder, big-leaf maple and spruce trees on the southern 1/3 of the dike (see map 4 in Appendix 2.0). Fill material would be trucked in and placed using a tractor/excavator. The fill would then be compacted. A maintenance road would be built on the eastern and western top portion of dike to allow for tractor passage, pasture access, and dike maintenance. The road on the western half of the dike would extend from the current back road to Highway 38. There would be no access to Highway 38 from this road. The eastern maintenance road would extend to the mid-portion of the dike where it would slope down to the pasture. A combination of Sitka spruce, maple, alder and western red cedar would be planted below the toeslope of the dike to replace the trees that were removed under this option.

Option 2

Option 2 would be a temporary fix that would focus on the most damaged area of the dike. All trees that are on the dike would remain under this option, though lower limbs would be removed to allow for passage of the tractor. Damaged areas (holes and breeches) would be filled by a combination of hand tools and tractor. The maintenance road and pasture access would not be constructed under this option.

Action 4: Culvert Installation

1). Objective of culvert installation

The project proposes to install four additional culverts to provide for better pasture access to allow for more efficient mowing (issue 3).

2). Description of the proposed project

Three of the proposed culverts would be located in the C ditch system south of the O.H. Hinsdale viewing area in Township 32 South, Range 11 West section 32. The fourth culvert is located just west of the south end of Hinsdale Slough in Township 21 South, Range 11 West, Section 33 (see map 7, 11 and 12 for location of proposed culverts in Appendix 2.0).

All culverts would be galvanized, aluminum/aluminized or made of High Density Polyethylene (HDPE) plastic to prevent corrosion. The culverts would be sized according to drainage area and estimated water volumes. Culverts would be placed using a back-hoe, track-hoe or some similar excavation machinery. Culverts would be placed in the drainage system in a manner that does not restrict flow and at a depth that allows for heavy machinery to pass over them.

All excess excavated material would be end hauled to an upland storage site located east of Koepke Creek, north of the back road.

Action 5. Koepke Creek channel restoration

1). Objective of the channel restoration

Establish a channel to improve passage conditions for adult and juvenile coho salmon between the Umpqua River and Koepke Creek to access spawning and rearing habitat. The channel would allow juvenile salmonids to migrate out of the managed pastures when Koepke Creek begins to dry up in late spring, and as water quality declines in the ditch network in the summer. This project was designed to meet the concerns identified in issues two and six. Dean creek has the ability to provide for a variety of wildlife species and can be managed in a manner that benefits other species as well as elk.

2). Description of Proposed Project

Option 1

A new channel approximately 400 feet in length will be excavated connecting the C-6 ditch system to where Koepke Creek flows onto the pastures. The channel would match the dimensions, pattern and profile indicated by elevation surveys through the project area. It is likely that there was stream channel connectivity with the tidal sloughs in the pasture prior to the construction of Highway 38 and construction of the channel would provide better connectivity for salmonids in years that adults may migrate into Koepke Creek to spawn. Map 7 shows the location of the proposed channel.

All work would be conducted during the "in-stream" work period between July 1 and September 15.

Work would be done using a backhoe or equivalent piece of equipment. Excavated material would be hauled to an upland storage site located east of Koepke Creek, north of the back road. An appropriate size culvert would be installed approximately 15 feet from the junction of the new stream channel and the C-6 ditch system to allow for the tractor to cross the stream to the back pastures.

Vegetation disturbance would be kept to a minimum. Willow (*Salix* spp.), ninebark (*Physocarpus capitatus*), vinemaple (*Acer circinatum*) and other woody plants would be planted to provide stream side shading and hiding cover for coho smolts.

Option 2

Under this option, a channel would be constructed between Koepke Creek and Koepke Slough (see Map 7). The channel would be designed in a manner that dissipates energy, producing a slow meander flow that allows for juvenile fish to move freely through the channel.

The channel length would be approximately 600 feet in length. All work would be conducted during the "in-stream" work period between July 1 and September 15. A culvert would be installed under the access road on the west dike of Koepke Slough. The culvert would be designed in such a manner as to allow for adult and juvenile passage of salmonids from the slough into Koepke Creek. To prevent fish from migrating into the ditch system, the C-6 ditch would be blocked using a combination of rock and fill just east of the junction of the C-6 and C-2 ditch. The block would be designed in such a manner that would allow for a tractor to pass over the former ditch.

A design for the fish passage culvert has not been completed as of the time this EA was prepared, and the construction estimate is based on similar culvert projects BLM has implemented in recent years.

The work would be done using an excavator or equivalent piece of equipment. Excess excavated material would be hauled to the upland storage site located south and east of Koepke slough.

Vegetation disturbance would be kept to a minimum. Willow, ninebark, vine maple and other woody plants would be planted along the channel to provide shading and hiding cover for coho.

Action 6: Waterfowl basin structure repairs

1). Objective of the waterfowl basin structure repairs

Repair two water control structures that have failed. These structures were installed in 1992 and maintain water depth into two basins that provide nesting habitat for waterfowl. This project addresses some of the concerns identified in issue number six.

2). Description of the proposed project

Two culverts and flashboard risers would be replaced. The first culvert has a length of 33 feet and a width of 24 inches and is located near the west end viewing platform. The second culvert is 12 feet in length and 18 inches in width and is located near the back end of the viewing area across from the flush restrooms facilities. Map 8 in Appendix 2.0 shows the specific location of the culverts. The new culverts and risers would be made of corrosion resistant material (i.e. plastic, aluminum).

The culverts would be installed using a backhoe and would be installed in a manner that heavy equipment such as a tractor can pass over it without damaging the culvert.

Action 7: Tree Planting

1). Objectives of tree planting

The objectives of tree planting are to create future sheltered loafing areas for elk and provide replacement trees for those annually lost from age, disease and windthrow. This project meets some of the concerns identified in issue number six by providing habitat for a variety of species.

2). Description of the proposed project

Tree planting would be concentrated in 3 areas; west of the junction of Highway 38 and Koepke Slough and along two meandering drainage channels east of Hinsdale Slough. These areas were selected because the 1939 photo series show that these sites were formerly dominated by trees. In addition, these locations are often used by elk for loafing (see Map 9 in Appendix 2.0).

Tree recruitment at DCEVA is problematic due to tree damage caused by elk such as antler rubbing, tree sparing and foraging on young trees. Trees may be protected by a variety of measures including but not limited to cages, tubing, elk exclosures or planting large trees (8’ plus in height). In addition, the identified areas may be over-planted to help insure that some trees survive.

Tree species would match the original species composition and would include sitka spruce and Oregon ash.

Action 8: Upland Meadow habitat creation

1). Objectives of upland meadow habitat creation

Objectives of the creation of upland meadows is to provide elk forage that contains lower levels of parasites and diseases compared to bottomland, and forage that better suits the needs of elk cows during calving season. This project was designed to meet the need identified in issue number four.

2). Description of the proposed project

Option 1

Upland meadows would be established by removing all overstory and understory vegetation and planting the area with a grass/forb mix. The size of the openings would vary with location but would not exceed 5 acres each. Map 10 (Appendix 2.0) displays the location of the two proposed upland meadows. Under this alternative the sites would be accessed via a natural surface road located on the east side of Koepke Creek. The lower portion of the road extending from the junction of the main back road to the first flat upland bench would need to have some overhanging branches cut, large boulders removed and some minor drainage corrections made such as water bars installed. All road reconstruction would be limited to dry periods, generally June to October.

Meadow creation would focus on gently sloping areas dominated by red alder (*Alnus rubra*) with a salmonberry (*Rubus spectabilis*) understory with a southern exposure. Trees and stumps would be removed from the area via heavy equipment. Merchantable trees would be removed and sold. Slash would be disposed off as described in the three following paragraphs. Soil would be prepared for planting using a tractor and disk. Soil would be amended to provide a proper growing medium for grass/forbs. Seeding would be done with hand seeders. These meadows would need continued maintenance to prevent the surrounding forest from encroaching and to maintain the desired forage. If after five years, the sites do not produce the forage as intended, the areas would be planted with the appropriate site mix of trees and allowed to reforest.

Slash Disposal

Slash would be disposed of using the following methods: pile burning, jackpot/swamper burning, or broadcast burning depending on the site condition.

Pile burning would involve slashing all existing undesired vegetation down to ½" diameter and either hand or machine piling the material. Piles would be covered with black plastic and burned during fall/early winter months. Machine piling would be limited to areas where slope and soil conditions allow for operation as identified in the BMPs.

A second acceptable slash disposable method would be Jackpot/swamper burning. This method is used where fuels are unevenly distributed in spotty but heavy concentrations. Jackpot/swamper burning involves covering heavy fuel concentrations with plastic and

then burning those areas during the fall/early winter months. Swampers would attend to the burning and throw (swamping) additional slash from the surrounding area into the burning concentrations. Additional saw work would be done as needed to facilitate swamping.

A third acceptable method would be broadcast burning. This method would be done under spring-like conditions using hand ignition provided other desired conditions can be maintained or mitigated for. Fire lines would be constructed to mineral soil on the exterior of unit boundaries. Water bars would be constructed where slope conditions make it necessary. One hundred percent mop up of burned areas would be required.

Option 2

This option mimics Option 1 except that large equipment would not be used to remove the trees. The trees would be sold to a contract fire wood cutter and would be removed with a winch. If after five years, the sites do not produce the forage as intended the areas would be planted with the appropriate site mix of trees and allowed to reforest Slash disposal would be the same as described under Option 1.

Option 3

This option differs from the first because the roads would not be reopened and the trees would not be removed from the site after they had been dropped. Trees would be bucked into 4' lengths and would be burned on location with the slash. Stumps would not be removed and soil preparation and planting would be restricted to hand methods. If after five years, the sites do not produce the forage as intended the areas would be planted with the appropriate site mix of trees and allowed to reforest. Slash disposal would be the same as described under Option 1.

Action 9: Culvert Replacement

1). Objectives of culvert replacement

The objectives of the project are to replace a number of culverts that have failed, been damaged, or were originally installed improperly, to allow for better function of the drainage system and increased access for mowing equipment for forage maintenance. This project addresses concerns identified in issue number one and three.

2). Description of the proposed project

There are five culverts that need to be repaired or replaced (see Map 5 and 6). Replacement would be accomplished using a backhoe or other similar earth moving equipment and would be restricted to the instream work period extending from July 1 to September 15. Fill material would be hauled to the site from a stockpile located east of Koepke Creek, north of the back road, and would be compacted to standards to allow for passage of vehicles

The first culvert is located at the junction of the C3 and C2 ditch (see map 13 for channel designations). The primary purpose of the culvert is to allow passage between pastures. The culvert would be replaced with a culvert approximately 36 inches in diameter and 20' in length.

The second culvert is located along the C6 ditch system, near the intersection with D1. This existing culvert allows for passage into the back fields. The culvert is perched too high and now functions as a control point for the C6 ditch system. The new pipe would be installed lower in the fill to allow for free drainage of the C6 channel.

The third culvert is located near the C2 and C6 confluence. The culvert is 36" in diameter and 12 feet in length. The primary function of this culvert is to allow for passage between the pastures. The length of the culvert poses a safety problem since it is the same width as the tractor. This proposal calls for removing the culvert and replacing it with a culvert that is 20 feet in length.

The fourth culvert is located on the southeastern corner of Hinsdale Slough. The culvert has a history of being plugged by beaver, which in turn floods the pastures to the east. This culvert was blown out during the high water during the winter of 1996/97. The culvert would be replaced with an appropriate size culvert and may be equipped with a beaver proof intake.

The fifth culvert connects the B1 ditch and Hinsdale Slough system. The 36" culvert originally had a tidegate on the slough side of the culvert. The tidegate lid has fallen off, allowing water to enter the B1 system from the slough. The pipe would be inspected for structural integrity. If the pipe is failing it would be replaced and the tidegate would be reinstalled. If the pipe is sound, then only the tidegate would be replaced. A second option for this site is to plug this culvert, separating the B ditch from Hinsdale Slough allowing the ditch system east of Hinsdale Sough to function as a separate drainage system then ditch system located west of the slough.

Action 10: Noxious Weed Control

1). Objective of noxious weed control

The objective is to eliminate or control Oregon State listed noxious weeds bordering and within the project area, through the use of biological, manual, mechanical, and BLM approved chemicals. This project addresses concerns identified in issue twelve.

2). Description of the proposed project

Six principal noxious weeds are currently located within the project area, these include Canada thistle (*Cirsium arvense*), purple loosestrife (*Lythrum salicaria*), bull thistle (*Cirsium vulgare*), scotch broom (*Cytisus scoparius*) Himalayan blackberry (*Rubus aremeniacus* aka *Rubus discolor*), and tansy ragwort (*Senecio jacobaea*).

Himalayan blackberry would be treated in selected areas where blackberries are interfering with DCEVA maintenance objectives.

Treatment for Himalayan blackberry is usually a twofold process. The plant would be mechanically or manually treated to reduce the overall plant vigor and size. Resprouts would be treated with approved chemicals. All federal, state, and manufacture application stipulations would be strictly adhered to. As needed treated areas would be planted with a high quality elk forage mix as identified in the DEVMP.

Purple loosestrife and tansy ragwort are currently controlled by two biological agents. These biological agents would continue to be the principal control method in the DCEVA. If biological agents don't control these plants, then the use of chemicals maybe considered. Chemical manufacturer application parameters would be strictly adhered to.

Individual plants or small populations of Canada thistle, bull thistle and scotch broom are primarily controlled through mechanical methods (mowing) and by hand pulling. These would continue to be the main methods of control in the DCEVA. The use of BLM approved chemicals may be considered on larger populations and/or sites. The application parameters identified by the manufacturer would be strictly adhered to.

2.3 Project Design Features

Project Design Features (PDFs) are included in the proposed action for the purpose of reducing anticipated adverse environmental impacts which might stem from the implementation of the proposal. The PDFs noted below would be a part of the action alternative, unless otherwise noted.

1. Existing fill will be utilized during construction to the maximum extent possible. Any waste material disposed on BLM-managed land would be disposed at a stable, approved waste disposal site in accordance to the BMPs of the Coos Bay District's Resource Management Plan and the specialist's recommendations. Storage sites would be placed such that a minimum 40-foot vegetative buffer exists between the soil and the surface water. Temporary storage piles will be covered to prevent wind and rain erosion.

2. Silt fencing and straw bales would be used to prevent project site erosion where direct flow is possible from excavated materials to surface waters.

3. All exposed soils within the diurnal tidal maximums and minimum range will be protected using erosion control methods to prevent soil movement.

4. Prescribed burns will maintain a minimum 10-foot vegetative buffer between mineral soils and surface waters on flat grades; increasing steepness of grade will require increased buffer widths.

5. During plowing operations, a minimum 20-foot vegetative buffer will be maintained between mineral soils and surface waters on flat grades; increasing steepness of grade will require increased buffer widths and consultation with the specialist.

6. Wetlands will be protected from soil disturbance to the greatest extent practical.

7. Exposed soils from dike repair, meadow creation, culvert replacement, culvert installation, and waste disposal areas will be seeded and mulched with weed free/certified materials if available.

8. A 10-foot vegetative buffer will be maintained between all surface water and any winch trails (Option 2 Upland meadow construction). The winch trails will not cross existing surface waters.

9. All activities occurring within the waterways of the project area (culvert installation, dike repair, creek restoration etc.) will be restricted to the instream work period from July 1st to September 15th.

10. Prescribed burn activities that may lead to smoke drift across Highway 38 would have traffic control measures. This may include but is not limited to signs, flaggers or other highway control devices.

Chapter 3.0 Affected Environment

This section describes the current condition of the environmental components that could be affected by the Proposed Action/projects.

DCEVA is located within the floodplain of the Umpqua River, next to a major road, State Highway 38, and receives about 400,000 visitors each year. It is three miles east of the coastal town of Reedsport, Oregon.

The current conditions of the environmental components of DCEVA have been listed and analyzed several times in the past ten years. Refer to EA OR125-96-14, the Dean Creek Elk Viewing Area – Activity Management Plan, 1993, and DCEVA 1998 Amendment to the 1993 Plan – BLM Coos Bay. These documents are incorporated by reference.

3.1
Hydrology

Stream Channels and Floodplains

Separation of the bottomland within the DCEVA from the influence of the Umpqua River has resulted in subsidence of the former marsh due to a lack of alluvial sediment deposition. Physical compaction, and oxidation and consolidation of soil peats have also contributed to subsidence. Prior to the 1930's, bottomland within the DCEVA was tidally-influenced salt water marsh. In 1933, construction of Oregon Highway 38 created a continuous dike north of the marsh. Tidegate structures were installed in the highway fill to drain water to the Umpqua during outgoing tides and prevent inundation during incoming tides.

Today, six State-maintained tidegates and several field culverts control the water surface elevation within the EVA. Bottomland consists of pastures and wet meadows dissected by several man-made ditches and remnant tidal channels. Undersized culverts and culverts placed high relative to the drainage structures under Highway 38 encourage sediment deposition and reduce drainage efficiency.

Subsidence, sediment and organic material deposition, ponding at culvert inlets, and leaking tidegates contribute to higher water tables and wintertime flooding. The depth of the water table in the DCEVA ranges from the surface to approximately 70 inches below the surface depending on topographical and seasonal influences. Pastures remain dry throughout the growing season and occasionally flood or pond water during the winter. Meadows, situated at slightly lower elevations, may have standing water during the winter and remain saturated throughout the growing season.

Culvert maintenance and dredging south of the O.H. Hinsdale viewing area was completed in 2003 to improve drainage. Two undersized culverts were removed/bypassed and a culvert blocked by sediment and organic material was cleared in the C drainage system. In addition, greater than 3,500 cubic yards of material was

dredged from C system ditches and tidal channels. Portions of the same channels were also dredged in 1988 and again in 1992.

In 1992, five natural basins on the EVA's west end were enhanced for nesting and migratory waterfowl. Water control structures (culverts with flashboard risers) were installed at the mouth of each depression so that a relatively constant water level could be maintained during the winter and early spring.

Water Quality

Summer water temperatures in the ditches and tidal channels are high relative to the State standard for salmonid rearing. Elevated temperatures are primarily due to a lack of shade, a high width to depth ratio, and low summer flows. Bottomland drainages at Dean Creek are subject to all these conditions. Continuous sampling in 2002 and 2003 at 5 sites within the C and D systems shows that the average of the daily maximum stream temperatures for the seven warmest consecutive days during the summer ranged between 69.8 and 80.9ºF. The State's stream temperature standard for the 7-day maximum in the vicinity of the lower Umpqua is 64.4ºF. Where Koepke Creek emerges from the forest and enters the pasture, the 7-day maximum temperature was 59.1ºF in 2003.

In addition to continuous temperature sampling, point water temperature, pH, salinity, and dissolved oxygen measurements were taken at five locations within the EVA and at a single site on the Umpqua on June 26th and July 17th, 2002. Point water temperature samples also show relatively high temperatures in the C and D drainage systems as well as in the Umpqua River north of the O.H. Hinsdale viewing area. Six samples taken on the 26th averaged 71.2 º F and 6 samples taken on the 17th averaged 70.0ºF.

Stream pH measurements indicate that pH values in the EVA and the Umpqua are within or slightly more acidic than the range given as the State's estuarine and fresh waters standard (6.5 to 8.5). With one exception, pH values ranged between 6.2 and 7.2 at the five EVA sites and the single Umpqua River site. Freshwaters can vary in acidity and alkalinity due to natural causes and anthropogenic inputs. At Dean Creek, organic acids in decaying plant matter may be contributing to reduced pH values.

Salinity measurements indicate that the tidegates allow saline water from the Umpqua to enter the ditch system in the EVA. Salinity ranged from 0.5 to 2.8 parts per thousand (ppt) in late June, and 0.2 to 7.0 ppt in mid July (average ocean salinity is 35 ppt, and freshwater salinity is usually less than 0.5 ppt).

Dissolved oxygen (DO) values were relatively low in the ditch and tidal channel system during summer 2002 sampling. Values ranged from 0.4 to 7.5 parts per million (ppm) in the C drainage system with an average of 3.3 ppm. For water bodies identified by the Oregon Department of Environmental Quality (ODEQ) as providing for cool-water aquatic life, DO may not be less than 6.5 ppm as an absolute minimum. For warm-water aquatic life, DO may not be less than 5.5 ppm as an absolute minimum. Low DO values in the lowland drainage ways of the EVA are not unexpected. Oxygen losses occur when water temperatures rise, when salinity increases, when plants and animals respire, and

when microbes aerobically decompose organic matter. Stagnant water upstream from the tidegates during the summer is more likely to have lower dissolved oxygen levels than is flowing water because of less mixing.

3.2
Fisheries

Threatened & Endangered

The National Oceanic and Atmospheric Administration[1] (NOAA) listed Oregon Coast (OC) coho salmon under the Endangered Species Act (ESA) as Threatened on August 10, 1998 (63 FR 42587). Critical habitat has not been designated. However, on February 24, 2004 a federal appeals court prohibited authorities from protecting Oregon coast coho under the Endangered Species Act, reinstating a 2001 order by U.S. District Judge Michael Hogan declaring the original listing as unlawful and set aside as arbitrary and capricious. As such, at the time of the completion of this EA, coho salmon are not listed under the ESA.

OC steelhead trout were proposed as threatened under the ESA on August 9, 1996 (61 FR 41541), but found not warranted for listing on March 19, 1998 (63 FR 13347). OC steelhead is currently a Candidate species due to specific risk factors. The Umpqua River coastal cutthroat trout population is considered part of a larger Oregon Coast ESU, which was officially delisted under the ESA in April, 2000.

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires Federal action agencies to consult with the Secretary of Commerce regarding any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect essential fish habitat (EFH) identified under the MSA. NOAA has found that the existing National Environmental Policy Act (NEPA) and ESA environmental review process, including the Interagency Streamlined Consultation Procedure for Section 7 of the Endangered Species Act (July, 1999), used by the United States Forest Service (USFS) and the Bureau of Land Management (BLM) for Federal Activities can be used to satisfy the EFH consultation requirements of the MSA.

EFH for coho and chinook salmon in the vicinity of the DCEVA is the mainstem Umpqua River, Dean Creek, and the tide-gated ditches and sloughs draining into the Umpqua River. EFH for coho also includes Koepke Creek, but only during late fall through early spring in years when adults migrate through the tide-gated culverts on Highway 38 and migrate through the ditch system. Because Koepke Creek dries up every year beginning in late spring or early summer, it can provide habitat for coho only seasonally as described below. The ditches and sloughs also have the potential to provide rearing habitat for juvenile coho and chinook salmon that pass through the tide gated culverts under Highway 38, but water quality conditions likely limit their presence to the late fall through early spring.

[1] Formerly referred to as the National Marine Fisheries Service (NMFS).

Fish Presence in the DCEVA
Juvenile coho salmon were observed in the C ditch system in June of 2002, and adults migrated through the ditch system and spawned in Koepke Creek in the fall of 2002 and 2003. Based on anecdotal information from former residents at the DCEVA, salmonid spawning in the creek is rare, but it has been documented in recent years.

Because Koepke Creek dries up every summer, juvenile coho salmon cannot survive in the small stream beyond the late spring or early summer months. The only fish that have a chance for survival are those that migrate downstream and remain in a small spring/seep area at the base of the slope where Koepke Creek flows into the pasture, or those that migrate out through the ditch system to the Umpqua River. Few, if any, juvenile salmonids are able to remain in the ditch system throughout the year because of poor water quality conditions during the summer months. As determined through extensive sampling conducted in June and July 2002 throughout the C and D ditch systems, water quality declines to lethal or near lethal conditions for salmonids by early July, and declines more so later in the year[2].

When the tidegates under Highway 38 are not functioning properly due to blockage by debris, during tides that rise above the height of the tidegate, the force of water through the culvert under the highway is sufficient to literally flush sub-yearling salmonids and other small non-salmonid species into the ditch systems. This was confirmed in the early summer of 2002 when fingerling coho and other non-salmonid species were observed in ditch C at the outlet to the tide gated culvert near the kiosk. It is likely that these fish migrated back through the tide gate to the Umpqua River because of poor water quality conditions in the ditch system, but this was not confirmed.

Other Fish Species
Since BLMs acquisition of the DCEVA, salmonid presence has not been documented within the ditches or sloughs (Koepke and Hinsdale Sloughs) other than as described above. Anecdotal information indicates that warm water fish species and possibly cutthroat trout once occupied the sloughs, but through time the sloughs have filled in to the point that they are now shallow and near-stagnant ponds during summer months.

Non-salmonid fish species documented by BLM within the C and D ditches and sloughs include three-spine stickleback, two cottid (sculpin) species, redside shiner, juvenile surfperch, and a sunfish species recorded as "pumpkinseed". A starry flounder was also observed being consumed by a great blue heron in the D-1 ditch (east of the tidegate at milepost 3.35) during the fall of 2003. It's likely that these species are occasionally

[2] Pacific salmonids are at risk when temperatures exceed 23-25° C and the upper lethal temperature for coho salmon is 26.0° C (Spence et al 1996). Water sampling conducted in June and early July of 2002 showed that temperatures observed throughout the ditch system were well above the preferred range for salmonids, with the majority within less than 5° of the upper lethal level; including the backwater area of the Umpqua River near the tide gates at 22.8° C. Dissolved oxygen (DO) deprivation begins at approximately 6 mg/l for salmonids, and high water temperatures, which decrease oxygen solubility, further increase the stress on salmonids caused by low DO concentrations (Spence et al 1996). With few exceptions, DO levels throughout the ditch system were very low.

flushed into the DCEVA when the tidegates aren't functioning properly as described above. Based on historical fish and water quality sampling, three-spine stickleback are the only fish species believed to currently persist in the ditch system throughout their entire life cycle because of their ability to tolerate warm water and low dissolved oxygen levels.

3.3 Wildlife

The Lower Umpqua Watershed Analysis September 1997 and the Dean Creek Elk Viewing Area-Activity Management Plan provide a general description of wildlife species and habitat conditions in the watershed and the DCEVA. Site-specific information on wildlife and habitats in the project area is provided below.

Species and habitat including threatened and endangered species

Northern spotted owl (threatened)

There are no known Northern spotted owl (*Strix occidentalis caurina*) locations within a mile of the proposed action area. The nearest known site is located on the Elliott State Forest located to the southeast of DCEVA. Suitable roosting/foraging/nesting habitat for Northern spotted owl is located on Spruce Reach Island (SRI) adjacent to the project area. This habitat is located along Highway 38, a main thoroughfare between the inland valleys and the coast.

Marbled Murrelet (threatened)

The nearest occupied marbled murrelet (*Brachyramphus marmoratus*) site is located on SRI where approximately 40 acres provide suitable nesting habitat. The site is adjacent to a portion of the proposed waterline. This habitat is located along Highway 38, a main thoroughfare between the inland valleys and the coast. A small, isolated stand of mature spruce located on the southern flanks of Hinsdale dike is approaching suitable nesting habitat conditions.

American Bald Eagle (threatened)

There nearest known American bald eagle (*Haliaeetus leucocephalus*) is located ¾ of a mile north of the action area. Suitable roosting, perching or nesting habitat is located in the proposed action area. Eagles frequently forage for waterfowl at the DCEVA, particularly in the winter.

Big Game (Deer, Bear and Elk)

Black-tailed deer, bear, and Roosevelt elk are found throughout the project area. These animals utilize a variety of habitats, from timbered uplands to wet meadows and pastures. The elk herd have become somewhat acclimated to the presence of human activity due to the continual highway and visitor traffic as well as the activity associated with management (mowing, ditch maintenance etc.).

Elk forage at the site is steadily declining due to three primary reasons; the area is gradually subsiding making the area lower in regards to the water table, maintenance of the tidegates has been problematic allowing water into the area, and marginal forage

plants (reed canary grass and soft rush (*Juncus effuses*)) that respond well to disturbance and wet soil continue to spread

Other Wildlife Species

Additional species known to utilize the area include large mammals such as the coyote, bobcat and mountain lion. Smaller mammals include porcupines, squirrels, chipmunks, skunks, bats and mountain beaver. Numerous species of waterfowl, shore birds and song birds, including neo-tropical birds are present in the project area. Amphibians known to occur in the project area include three species of frog (red-legged frog, Pacific tree frog, bull frog (exotic)) and 7 species of salamanders (western red-backed, ensatina, Dunn's, Clouded, Pacific giant, southern torrent and rough-skinned newt).

In 1992, five natural basins on the EVA's west end were enhanced for nesting and migratory waterfowl. Water control structures (culverts with flashboard risers) were installed at the mouth of each depression so that a relatively constant water level could be maintained during the winter and early spring. Some of these no longer functioning as intended due to the loss of the water control structures. Currently water levels are controlled by precipitation and to a lesser degree tides.

The complete list of wildlife species that may be located in the area can be located in the Final Coos Bay District Resource Management Plan and Environmental Impact Statement (RMP FEIS) Volume II in Appendix T. This list also provides the status of each species

3.4 Botany

The following report is an abbreviated version of the botany report. The full report is available for review at the Coos Bay District Office of the BLM.

The areas of proposed projects are a combination of hardwood and coniferous forests along with a mosaic of pastures and wetlands. The forest which is adjacent to the wet meadows has a dense understory of salmonberry, huckleberry, and sword fern contains a mixture of both hardwoods and conifers. The dominant tree species of the forest, some of which are encroaching the wetlands are comprised of sitka spruce (*Picea sitchensis*), willow (*Salix sp.*) and some maple (*Acer sp.)* and red alder (*Alnus rubra*) trees. Along the ditches and waterways which break up the pastures and wet meadows throughout the DCEVA, shrubs and woody species such as elderberry, willows and various blackberries line the banks. There is an abundance of sedges, rushes, bulrush, cattail and reed canary grass that grow in the wet meadows throughout the project areas. The dominant species of these slough sedge marsh are reed canary grass (*Phalaris arundianacea*) and slough sedge (*Carex obnupta*). Moist habitat which is conducive to an abundance of mosses, liverworts and some lichens is prevalent within the DCEVA.

The moist habitats could potentially contain several Special Status species. The salt marsh area, especially on the west end of the DCEVA, contains potential habitat for Henderson's checker mallow (*Sidalcea hendersonii*). Historical records indicate that Henderson checker mallow had been located within the salt marshes at the mouth of the

Umpqua River including other close by tidal river estuaries and estuarine islands. It occurs north of the DCEVA on a salt marsh island near Florence. Since 2001, this is a BLM Assessment species and an Oregon Natural Heritage Program (ONHP) List 2. It has recently been nominated to be a List 1 species, meaning that it is threatened with extinction or presumed to be extinct throughout its entire range. The new ranking may take effect during 2004 when the Oregon Natural Heritage Information Center (ONHIC: The new name for ONHP) publishes their listing of rare, threatened and endangered plants and animals of Oregon.

There is also marginal habitat in the salt marsh area for the water-pimpernel (*Samous parviflorus*), a BLM tracking species and an ONHP List 3, meaning that more information is needed before status can be determined, but which may be threatened or endangered in Oregon or throughout their range. There is a close by population of water-pimpernel located in the salt marshes of Spruce Island. Potential habitat is also present for several special status lichens and some bryophyte species due to the presence of mature spruce trees which give support to many different epiphytes in a moist coastal environment. The alectorioid and cyanolichens are much more common on trees and shrubs in mature stands. Overall, bryophyte and lichen diversity is greater in the mature and old growth areas.

Pre-field review
All special status plant species known or suspected to occur within the project area are identified in Appendix A, B & C in the botany report. This determination is based on the proposed project overlapping the known or suspected range of a species as well as the likelihood that potential habitat is present. Potential habitat is determined by aerial photographic interpretation and review of information on each species habitat requirements. Portions of project area have been previously surveyed for special status vascular plants. However, as this project encompasses more than the surveyed area, pre-disturbance surveys of proposed area are required to avoid loss of undiscovered sites by habitat-disturbing activity. Should any special status specie be found, management would be implemented either under the Final Supplemental Environmental Impact Statement (FSEIS 2004) or under the Record of Decision (ROD 2004) where management is required. See appendices for lists of special status species which require surveys before ground-disturbing activity. Survey will not be conducted for species whose known or suspected habitats do not overlap with project area or require habitat not found in the project area.

Field Results:
Previous surveys consisting of both vascular and nonvascular plants have been done in various parts of the DCEVA. No special status or T&E have been located.

3.5 Geology
The following report is an abbreviated version of the geology report. The full report is available for review at the Coos Bay District Office of the BLM.

The project areas are located within an Anticline/Syncline complex. The bedrock consists of the Siuslaw Member of the Flournoy Formation. This formation consists of very thick-bedded, massive to graded fine-grained sandstone with minor sequences of thin-bedded siltstone and fine- to very fine-grained graded sandstone beds and some very thick-bedded channelized sandstone. The bedrock is exposed in the uplands and underlays Quaternary Alluvium of the floodplain/lowlands. The alluvium is floodplain and stream channel deposits made of clay, silt, sand, and gravel. This project location includes tidal flat sediments deposited prior to the construction of levees. Currently, peat deposits have been accumulating in the lower parts of the land, mixed with sediment delivered from the adjacent uplands.

There appears to be no active faults within one mile of the project. Bedding dip planes are relatively level, being approximately 6º to the north-northeast. The axis of a north-oriented syncline crosses the west end of the project. It should be noted that it is highly probable that not all of the geologic structures, including faults, have been mapped.

Associated hazards of these formations include: flooding (the east end of the project appears to lie within the 100-year floodplain), and over-steepened. Additional risks include earthquake induced liquefaction and subsidence. Field observations indicate the presence of debris flow material and chutes.

3.6 Soil

Four soils units were mapped within the project area. The soils are derived from sedimentary rock, colluvium, and/or alluvium, dependent on the environment. They include:

Coquille silt loam
Svensen-Millicoma-Reedsport Complex
Reedsport-Millicoma Complex
Svensen Loam

Specific soil information can be found in the specialist report and soil surveys from the Natural Resources Conservation Service.

3.7 Fuels

The generally flat pasture lands adjacent to Highway 38 were created after construction of the highway by diking and installation of tidegates to drain what was a salt marsh. Fuel types vary greatly in the project area. Presently two distinct fuel conditions occur in those pasture lands. In the areas not seasonally maintained by mowing due to the presence of water or due to lack of grazing, the dominate fuel is mature reed canary grass with one-third or more of the standing grass containing dead and cured fuel (Fire Behavior Fuel Model 3, NFES #1574) in condition class III [3]. It is that dead fuel

[3] Fire Regime Condition Classes are a qualitative measure describing the degree of departure from historical fire regimes, possible resulting in alterations of key ecosystem components such as species

component which will carry a fire under certain conditions with flame lengths up to twelve feet and rates of spread up to 100 chains per hour. In managed blocks of pasture receiving annual mechanical treatments (mowing) in conjunction with regular grazing by elk herds, the flammability of the fuel bed is greatly diminished. Mowing generally occurs twice during the year, early in the spring and late in the summer. From 1992 through 1999 portions of the project area were hayed resulting in grass removal. Since, 1999 the government has not been able to locate parties interested in haying the pastures. As a result all the grass that has been mowed since this time period have been left on the pastures, resulting in the build up of thatch across a large portion of the pastures. If left untreated these pastures would likely begin to redevelop Fuel Model 3 characteristics as previously described. Within the pastures are a few scattered patches of mature Sitka spruce, willow, and red alder. The scattered and isolated timber components within the pasture areas do not contribute any significant influence to the overall fuel type and condition within the pastures. During the wet season (late fall through early summer) the pastures often have standing water on them.

The driest conditions are generally found from June through September though occasional summer showers and soaking drizzle associated with fog are a commonly occurring weather events. Because of the constant shallow water table in the project area and typically high average relative humidity, fuel moistures rarely reach a level that would allow for the most extreme fire behavior to occur.

Because the pre-1930's condition of the area as a salt marsh under tidal influences, it is unlikely that natural or Native American caused fire occurred in the areas now managed as pasturelands. It is probable that after dike construction occurred landowners applied fire in some limited fashion within the area to assist with reducing slash and other debris associated with the development of the pasturelands though no specific records indicating such use are readily available. Application of fire as a management tool by the BLM within the Dean Creek Elk Viewing Area dates back to the early 1990's when broadcast burning was analyzed in EA OR120-90-04 as a method of treatment to eliminate and modify the vegetative make-up of pastures within the EVA. The area had two broadcast burn treatments applied. The first burn took place in 1990 and the second in 1991. Since the 1991 burn, no subsequent attempts to burn blocks of pasture land have been made though one was planned for 1994 but the burn was not accomplished. Since 1991, prescribed burning has primarily been limited pile burning to eliminate fuel loadings resulting from site maintenance operations throughout the area.

The project area is immediately adjacent to State Highway 38. Smoke drift across the highway is of concern and Project Design Features identified in Chapter 2 would be implemented to alleviate potential hazards.

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composition, structural stage, stand age, canopy closure and fuel loadings. One or more of the following activities may have caused this departure: fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, introduced insects or disease and other past management activities (Schmidt et al. 2000)

Fire frequency in the upland project area is considered low to moderately low (fire regime IV and V) with moderate to high severity. Pre-fire suppression era fire return intervals are estimated to be in the 100 to 300 year range. Many fires were most likely caused by native populations in the area. Historical documents from botanist David Douglas, traveling through the Umpqua River area in the fall of 1826 indicated that fire appeared to be a frequent occurring event to the area. The native population of the area is presumed to have used intentionally set fire to create foraging areas for wildlife and to make areas more accessible for themselves (*Lower Umpqua Frontal Watershed Analysis, 1994*). Fire severity ranged from light and spotty underburning to large scale catastrophic stand replacing events.

Historically, large fires have occurred in the late summer and fall when fuel conditions are typically at their lowest fuel moisture in conjunction with an east wind event. With the advent of modern fire suppression tactics and improved access to much of the land base, most natural and man caused fires in the watershed are kept to a very small size, generally less than one acre.

Upland areas are dominated by an approximately 50 year old stand of mixed conifer and hardwoods that include red alder, Douglas fir, western hemlock, western red cedar and sitka spruce. These areas are on a predominantly north aspect with slopes averaging 50 to 60 percent. Current stand condition could be classified as Fire Behavior Fuel Model 10, NFES #1574 in a condition class III. However because of the north aspect, fire behavior in this area would be better described as that which would occur in Fire Behavior Fuel Model 8 which can produce flame lengths of one to five feet and rates of spread at one to ten chains per hour.

3.8 Recreation and VRM

DCEVA is a watchable wildlife site located within the floodplain of the Umpqua River. State highway 38, a major thoroughfare between the interior valleys and the Oregon coast parallels the low land pastures of the DCEVA. Currently, approximately 400,000 visitors each year stop at the viewing area. Primary activities at the site include wildlife viewing and interpretation. The site is located about three miles east of the coastal town of Reedsport, OR which have shown sustained interest and support for DCEVA.

The DCEVA is classified as Visual Resource Management Class II (VRM II), with goals to retain the existing character of the landscape. This classification does allow for low level change to the characteristic of the landscape. Management practices may be seen but the end result should not attract the attention of the casual observer.

The DCEVA currently has a high level of management activity including site maintenance involving heavy equipment and annual field mowing by a tractor. Visitor surveys indicate that this level of mechanical management does not distract from their site experience.

3.9 Cultural Resource

No cultural resources are known to exist in the project area

3.10 Noxious Weeds

Six primary noxious weeds from the Oregon State noxious weed list are known to be located with the project area, these include Canada thistle (*Cirsium arvense*), Purple loosestrife (*Lythrum salicaria*), bull thistle (*Cirsium vulgare*), Scotch broom (*Cytisus scopar*ius), Himalayan blackberry (*Rubus aremeniacus* aka *Rubus discolor*), and Tansy ragwort (*Senecia jacobaea*).

3.11 Hazardous Materials and Solid Waste

No hazardous substances or solid waste issues exist in the proposed project area.

3.12 Port-Orford-cedar

There is no Port-Orford-cedar present in the project area or in the area influenced by the proposed action.

3.13 Environmental Justice

The proposed project area is not known to be used by, or disproportionately used by, Native Americans, and minority or low-income populations for specific cultural activities, or at greater rates than the general population. This includes their relative geographic location and cultural, religious, employment, subsistence, or recreational activities that may bring them to the proposed area. Also, BLM concludes that no disproportionately high or adverse human health or environmental effects will occur to Native Americans, and minority or low-income populations as a result of the proposed action.

The BLM does allow collection of certain plants near the proposed action area for Native American cultural activities. This is coordinated with BLM on a case-by-case basis per request

Chapter 4.0 Environmental Consequences

This section provides the scientific basis for analyzing the Proposed Action/projects described in Chapter 2. Only substantive, site specific environmental changes that would result from implementing the proposed action are discussed in this chapter. If an ecological component is not discussed, it should be assumed that the resource specialists considered effects to that component and determined that the proposed action or options would have minimal or no effects. Similarly, unless addressed specifically, the following was found to be unaffected by the proposed action: air quality; cultural or historical resources; Native America religious concerns; prime or unique farmlands; flood plains; endangered, threatened or sensitive plant, animal or fish species; water quality (drinking/ground); wetlands/riparian zones; wild and scenic rivers. In addition, hazardous waste or materials are not directly in the proposed action or alternatives. The potential short- and long-term impacts to the affected resources are discussed. No irreversible or irretrievable commitment of resources has been identified for the proposed action.

4.1 Hydrology

The following report is an abbreviated version of the hydrology report. The full report is in the analysis file for this EA.

No Action Alternative:

If Actions 1, 2, 3, 4, 7, 8 and 10 do not occur, stream channels, floodplains and water quality will continue to respond to sediment and organic matter inputs and seasonal flows.

If a channel between Koepke Creek and the C6 ditch is not excavated (action 5), dispersed winter runoff will continue to flow across the vegetated swale between the road and ditch, and the pasture will remain saturated during the growing season.

Without repairs, water levels in the waterfowl basins (action 6) will continue to be controlled by runoff and the elevation of the culverts (the flashboard risers are no longer attached to the pipes).

Without the culvert replacement/upgrading (action 9), the culvert at the west end of the C6 ditch will continue to separate the C and D drainage systems affecting the bed and water surface elevations on both sides of the pipe. The culvert at the east end of the B1 ditch (confluence with Hinsdale Slough) will most likely remain plugged with sediment. The C2 culvert will continue to function properly (the culvert invert is lower than the receiving tidegate structure and the pipe diameter matches the width of the ditch). The undersized culvert on the southeastern corner of Hinsdale Slough will continue to act as a control point for sediment and water movement between the ditch and the slough.

Proposed Action Alternative:

Direct and Indirect Effects – Pasture management
Pasture management will not alter the morphology of the existing ditches and tidal channels because plowing, etc. would be restricted within 20 feet of surface water. Plowing will disturb the surface of the pasture/floodplain, but it is highly unlikely that enough precipitation will fall during the late summer to provide a mechanism for soil erosion and delivery to stream channels.

The application of fertilizer and lime during the late summer will not impair water quality if done under controlled conditions according to the manufacturer's instructions. The vegetated buffer strip will protect existing channel shade.

Buffer strips and cover established on plowed areas will reduce surface water velocities during high water thereby minimizing the potential for detachment and transport of soil and organic matter to streams. Dredge spoils thinly spread adjacent to the channels in the C drainage system act as a levee further reducing the chance of soil movement from the field to the stream network.

Indirect effects to water quality are not anticipated as long as pasture management activities are limited to the driest (higher elevation) sites within the EVA, and soil testing is utilized to determine the minimum amount of fertilizer necessary. Dry sites are characterized by a relatively deep water table during the growing season (compared to the wet meadows), and infrequent inundation during the winter.

Recommendation:
Avoid applying fertilizer to wet pastures. This will help prevent the transportation of fertilizer, which has the potential to stimulate algal growth. An overabundance of algae blocks sunlight preventing other plants from growing, and when it dies, aerobic decomposition lowers the oxygen content of the water.

Direct and Indirect Effects – Prescribed burning
No direct or indirect effects to channels or water quality are expected from prescribed burning. Burning will disturb the surface of the pasture/floodplain in the short term, but buffer strips and pasture grass growth will protect streams from sedimentation.

Direct and Indirect effects - Dike repair
Two options are being analyzed for the dike repair projects. Both options would meet the objective of repairing the structural integrity of the dike, though option 1 would be at a greater environmental cost due to the loss of shade producing trees.

Option 1
Direct and indirect effects to channels and floodplains are not likely as a result of Hinsdale Slough dike repair. Maintenance would occur within the footprints of the existing levees, and fill would be placed above the water line.

Removal of trees from the southern 1/3 of the dike will reduce summertime shade, exposing the wide and relatively shallow upper portion of the slough to direct solar radiation. Elevated stream temperatures would further impair water quality, but it is assumed, based on measurements in the B, C and D systems, that summertime water quality is already limiting to the growth and survival of cool-water aquatic life.

Option 2
Direct and indirect effects of Option 2 would be similar to those of Option 1, although existing shade would not be lost and temperatures would not be affected by management activities. The relatively slim chance of dike failure due to vegetation exists under either option. Trees left on the dike under Option 2 are subject to wind throw, and stumps left in the dike under Option 1 would decay over time and create voids in the fill.

Direct and Indirect effects - Culvert installation
Application of Project Design Features and the use of Best Management Practices during project implementation would minimize construction related sediment transport and turbidity. Excavation of the bed and banks to obtain proper culvert elevation and alignment would cause short-term disturbance; however, the disturbance would be localized, and vegetation would eventually protect fills from erosion in the relatively low energy/low velocity drainage ways.

Direct and Indirect effects - Koepke Creek channel restoration
Two channel restoration options are being analyzed under this action. Both options would meet the goals of restoring Koepke creek to an established channel. Option 2, would potentially have a greater environmental consequences. Under a worst case a failed tidegate at the mouth of Koepke Slough could lead to pasture flooding in the primary elk pasture.

Option 1
Excavation of a north-south trending channel connecting Koepke Creek and the C6 drainage ditch would likely lower the water table in the pasture/wet meadow between the road and the ditch. Koepke Creek would no longer flow over the pasture in the winter or contribute surface flow to the saturated swale between the road and the ditch in the summer. Diverting Koepke Creek into the new channel will cause localized sedimentation and turbidity in the C6 drainage system. Sediment movement should decrease as the dimension, pattern and profile of the new channel becomes established and riparian vegetation takes root. The bottom of the C6 ditch was lowered approximately two feet below the invert of the tidegate structure under Highway 38, so sediment deposited at the mouth of the new channel should have minimal affect on drainage from the C6 and C7 ditches to the east.

Groundwater and surface water from seeps and unnamed tributaries to the west of Koepke Creek will still drain to the pasture/wet meadow between the road and the C6 ditch after Koepke Creek is rerouted. Winter sheet flow over the pasture will likely be reduced, but saturated conditions in the summer may persist given topography, runoff and

the controlling influence of a plastic culvert set high in the fill to the south of the C6 ditch (directly opposite the C5 ditch).

Additional summer rearing pools with favorable water temperature and cover may develop in the new portion of the channel. Cool water flowing from Koepke Creek will have minimal influence on temperatures in the receiving ditches due to relatively low summer discharge (gallons per minute) versus the volume of stored water, and the lack of channel shade in the pastures.

Option 2
The direct and indirect effects of this alternative would be similar to those described for Option 1. The new culvert under the western dike of Koepke Slough would be placed approximately one foot below the invert of the tidegate structure at the mouth of the slough (the bottom of the upper slough and the bottom of the C6 ditch nearly match this elevation).

Connecting the C drainage system to Koepke Slough could, in a worst case scenario; lead to pasture flooding in the primary elk pasture should the existing cast-iron tidegate at Koepke fail completely during a high runoff and high tide event. Such flooding would be contained to the B system under Option 1.

Direct and Indirect effects - Waterfowl basin structure repairs
The direct and indirect effects of replacing the water control structure at the westernmost waterfowl basin are similar to the culvert installments. Application of Project Design Features and the use of Best Management Practices during project implementation would minimize construction related sediment transport and turbidity. Excavation of the bed and banks to obtain proper culvert elevation and alignment would cause short-term disturbance; however, the disturbance would be localized, and vegetation would eventually protect fills from erosion in the relatively low energy/low velocity drainage way. Surface water would not be present during the replacement of the southern structure so no direct or indirect water quality effects are anticipated.

Direct and Indirect effects -Tree planting
Tree planting will have negligible impact on stream channels, floodplains and water quality. Eventually the trees will shade swales, but these depressions are largely dry during the summer when shade matters most. Banks are currently stable in the vicinity of the proposed planting areas.

Direct and Indirect effects - Upland meadow habitat creation all options
Established Riparian Reserve buffers will protect streams, floodplains and water quality in the upland meadows. Road access will be limited to the dry season as identified in the BMPs.

Recommendation:
Under Option 3, the road would not be opened, but it should be water-barred following treatment of the upland meadows.

Direct and Indirect effects - Culvert replacements
The direct, indirect and cumulative effects of replacing/removing culverts in the ditch system are similar in scope and duration to the culvert installations. Short-term disturbance of stream beds and banks and water quality degradation would be associated with construction activities.

If the culvert at the west end of the C6 ditch and the culvert connecting the B1 ditch and Hinsdale Slough were both removed and replaced with fill, then the respective drainages could be managed as discrete drainage and maintenance dredging areas. Flood water from the failure of any one tidegate would impact a more limited area, and problems associated with the current structures could be addressed.

The invert of the existing C6 culvert is approximately three feet higher than the inverts of the tidegate structures under Highway 38 to the west and to the east. If a new culvert were installed, it would need to be sufficiently large because it would be buried approximately 4 feet. Also, the bed of the D drainage system to the west is approximately 3 feet higher than the bed of the recently dredged C6 ditch to the east. Placement of a larger culvert lower in the fill would likely cause a redistribution of sediment and loss of channel area in the C drainage system.

Elevation data also appears to bolster the argument for removing the B1 culvert. Although the tidegate inverts in Koepke and Hinsdale are nearly at the same elevation, the bed of Hinsdale Slough is approximately 2 feet higher than the bed of Koepke. Establishing a connection between the sloughs via the B1 ditch could cause a redistribution of sediment increasing bed elevation and reducing channel area. If the existing culvert is removed, then the depth of the B1 ditch could be maintained independent of sediment levels in Hinsdale.

Direct and Indirect effects - Noxious weed control
No adverse direct or, indirect effects to channels, floodplains and water quality are anticipated as a result of biological, manual, mechanical and chemical weed treatments.

Water can become contaminated by herbicides from runoff, as a result of leaching from contaminated soil, from a direct spill, or from unintentional contamination from aerial applications. The risk of such contamination would be negligible given handling and application precautions. Application would be restricted near open water sources and no herbicide preparation or application would occur directly in any water body. In addition, application would be restricted to weather conditions that minimize drift. Also, treatment of individual plants or plants with a large canopy (i.e. Himalayan blackberry) using backpack sprayers would ensure that a high proportion of the herbicide will be intercepted by foliage.

Cumulative Effects:

No cumulative impacts to stream channels, floodplains and water quality are expected from culvert installation/replacement as long as the new culverts approximate the width of the ditches and the bottoms of the pipes are below the invert of the tidegate structure under Highway 38. The new pipes would not pond water at their inlets during ebb tide or be prone to plugging in the interim between maintenance dredging operations.

The application of soil amendments and the use of herbicides on noxious weeds are not expected to have a cumulative impact to water quality as long as best management practices are followed and the chemicals are applied under controlled conditions according to manufacturer's instructions.

Channel restoration at Koepke creek will have minimal influence on water quality (temperature) of the receiving ditches due to the relatively low summer discharge, but may develop additional summer rearing pools in the new portion of the channel.

Assuming that the westernmost culvert is installed below the invert of the receiving tidegate structure, and the flashboard riser is actively managed (boards installed only from November through April to pond water), then the water control structure should provide adequate drainage during the summer. The existing water control structure to the south is installed relatively high in the fill. If possible, the new structure should be installed deeper (necessitating the use of more boards to obtain an equivalent water level) to encourage subsurface drainage during the summer.

4.2 Fisheries

The following report is an abbreviated version of the fisheries report. The full report is in the analysis file for this EA. Actions that may have a direct or indirect effect are described in the following paragraphs.

No Action Alternative:

Under the no action alternative the channel would not be constructed between Koepke Creek and C-6 ditch/ Koepke Slough. Although coho or other salmonid spawning in Koepke Creek is uncommon, it is likely to occur again at some time in the future as it did in 2002. Effects of maintaining the current condition could include the continued stranding of out-migrating fish because presently, there's no surface water connection between the creek and ditch/slough system which drains into the Umpqua River. Although there would be some survival of fish through the summer due to the cold perennial water in the seep/spring, the volume of water and the carrying capacity of the habitat declines significantly as the dry season progresses and the likelihood of fish survival is low.

Proposed Action Alternative:

Direct Effects - All actions

Culvert installation/replacement along with the waterfowl basin project and Koepke Creek channel restoration has the potential for short-term water quality impacts to three-spine stickleback during the culvert replacements (if any are present at the project locations in the ditches during the summer months). Individuals in the vicinity of the sites would probably move away from the work sites because of the presence of heavy equipment doing the work. It's highly unlikely that salmonids would be present in the ditch system during the instream work period because water temperatures are near or exceed lethal levels for coldwater fish during the summer months[4].

Indirect Effects - All actions

Indirect effects from culvert installation/replacement and waterfowl basin repair projects would be minimal. From late fall to spring of any given year, salmonids may be present in the ditch system, but the culverts would be placed and channel would be designed in a manner that would not appreciably inhibit their fish passage (there would be no plunge at the outlets, and the culverts will approximate the width of the ditches).

Either of the two action options for the Koepke Creek channel restoration (action 5) would have a positive effect on juvenile salmonids in the years following the successful spawning of adults in upper Koepke Creek. The improved connection of the stream with the ditch system or Koepke Slough will allow for out-migrating fish to leave the creek as it dries up and pass through the DCEVA to the Umpqua River, increasing their likelihood of survival.

Option 2 would involve the placement of a culvert that would require internal weirs to provide a series of resting pools for fish passage; it would cost approximately $35,000 more than option 1.

There are no anticipated direct effects to noxious weed control due to the "no-spray" buffers. Indirect effects include the reduced potential for spread of noxious weeds to fish-bearing streams due to the reduction of seed source.

[4] Pacific salmonids are at risk when temperatures exceed 23-25° C and the upper lethal temperature for coho salmon is 26.0° C (Spence et al 1996). Water sampling conducted in June and early July of 2002 showed that temperatures observed throughout the ditch system were well above the preferred range for salmonids, with the majority within less than 5° of the upper lethal level; including the backwater area of the Umpqua River near the tide gates at 22.8° C. Dissolved oxygen (DO) deprivation begins at approximately 6 mg/l for salmonids, and high water temperatures, which decrease oxygen solubility, further increase the stress on salmonids caused by low DO concentrations (Spence et al 1996). With few exceptions, DO levels throughout the ditch system were very low.

Cumulative Effects:

No cumulative adverse affects from the proposed action are anticipated for fish or fish habitat. The current production and survival of salmonids would be maintained. Short term sediment inputs associated with culvert repair/installation, stream restoration, and waterfowl basin repair should not result in a cumulative adverse impact due to the timing (in-stream work period), duration and dispersed nature of the actions.

4.3 Wildlife

No Action Alternative:

Under the No action alternative pasture management would continue at its existing level, dikes would not be repaired, upland meadows would not be created, Koepke Creek would not be restored, waterfowl basin would not be repaired and culverts would not be installed/replaced.

Forage quality and quantity would continue on its current trend. Elk forage would continue to decline in quality as reed canary grass and soft rush (*Juncus effusus*) expands through the wet bottom land. Though current forage production exceeds the needs of elk, there is a steady overall decline in the extent of vigor and quality of the forage. Poor forage can force the elk to travel outside the DCEVA to seek higher nutritional food sources. Winter can be particularly tough on elk, because energy demands are at their highest and forage quality is at their lowest. During the winter of 2002 and 2003, it became apparently that many of the elk at DCEVA were emaciated. This was most probably the result of multiple factors including the severity of the winter and parasite loading, but forage quality undoubtedly played a factor. In the long term, as pasture continues to become wetter through subsidence, the trend will be accelerated.

Under this alternative, Koepke Creek would continue to fan out across the back pasture, saturating approximately 15 acres. This area is classified as wet meadow, which provides good elk forage when conditions allow for the area to be mowed. Due to the saturated conditions of the area, the tractor generally can not access the area and the grass becomes rank and of poor nutritional value.

Under this alternative Hinsdale dike would not be repaired. The mature stand of spruce, alder and maple would remain. There would be continued potential for complete dike failure. If the dike did fail, adjacent fields would be flooded and elk forage would be degraded.

The upland meadows would not be created. This area is dominated by a stand of Red alder with an understory of sword fern and salmonberry. Currently this area provides potential habitat for numerous species including the White-footed vole (*Arborimus albipes*) which is recognized as a bureau tracking species and species of concern by the State of Oregon. This habitat would be maintained under this alternative.

The lack of upland forage sites would continue to be a concern from a wildlife point of view. Ideally upland sites would provide forage that contains lower levels of parasites and disease. In addition, these meadows are particularly important for the elk cows during calving season, providing plants higher in nutrients then the forage in the forest communities. Under the no action, pregnant cows would have to derive their primary forage from forest dominated vegetation, or leave the DCEVA for calving.

The waterfowl basin will not function as originally intended due to the fluctuating water level. The original intent was to maintain water during the winter and spring to improve condition for waterfowl and shore birds. In addition, the water helps keep predators (raccoons, coyotes etc.) away from mallards that nested on the islands. Without a continuous water level, nest predations would continue to be high, and habitat quality for waterfowl and shore birds would continue to be marginal.

Prescribed burning would not take place under this alternative. Areas that have a heavy thatch build up would continue to suppress the production of forage. Thatch would continue contribute to the overall decline of elk habitat.

Noxious weeds would continue to be controlled utilizing the current methods (biological, chemical, mechanical, and manual methods). These methods appear to be adequate as long as money is allocated to hire crews. If manual labor becomes cost prohibited, it can be expected that noxious weeds will further spread in the pastures, competing with more desirable forage, leading to an overall decline in wildlife habitat.

Proposed Action Alternative:

Direct and Indirect Effects –All Actions

The proposed treatment would not result in the removal or modification of suitable habitat for the Northern spotted owl, Marbled murrelet, or the American bald eagle. In addition, the increased level of noise due to construction and maintenance projects will not be above the ambient noise of Highway 38, therefore the projects will not disturb the above mentioned species and seasonal timing restrictions will not be required.

Short term negative impacts to species from construction activities (dike repair, culvert repair/replacement, stream restoration etc.) would include noise disturbance and physical disturbance from the presence of machinery and people. These impacts would be considered minimal since the construction and maintenance work would be restricted to the dry season to minimize soil disturbance which is after the calving/fawning/nesting season. Animals will temporarily avoid using these areas when humans are present, but will readily return to the area post action. Incidental loss of individual animals, such as rough-skinned newts will take place, but the loss of these individuals will not lead to a decline at a population level.

Direct and Indirect effects - Pasture management

Pasture management has the potential to "revive" areas that are now dominated by reed canary grass. Reed canary grass can be a suitable forage species if it can be mowed early in the spring and kept below 10 inches in height. This is often difficult to do because the

pastures are often quite wet during early spring, causing the tractor to bog down. More often then not, the opportunity to mow the site early is missed leading to the area to be dominated by rank grass. This grass in turns provides little nutrition to the elk.

Reed canary grass is very tenacious. It has the ability to reproduce from seed and rhizomes and is a hardy competitor due to its quick growth in the spring. Due to the aggressive nature and rapid growth, it can degrade the natural quality or diversity of a community by outcompeting other plants, forming a monoculture. The combination of discing, mowing and burning an area dominated with reed canary grass may help open the area to more desirable forage species. This in turn will provide a greater array of plants species in the project area and will increase in the quality of elk forage and other wildlife habitat.

Direct and indirect effects - Dike repair

The loss of large trees associated with the dike repair (option 1) would negatively impact the overall wildlife diversity of the area. The trees are large, have numerous cavities and large branches that serve as nesting areas for birds and small mammals. Once removed it would take approximately 80 years for the planted spruce to begin to take on the characteristics and ecological role that the large spruce now provide. These impacts would be avoided under option 2.

The continued loss of the dike would threatened the ability of the area to drain, leading to an increase in wetland plant and animals species, and a decrease in upland plants and elk forage. Wetland associated wildlife species such as wood ducks and rough-skinned newt may benefit from the increase in flooded pasture, but on the other hand, elk would be exposed to a decrease in forage quality and an increase exposure to parasites such as liver flukes (*Fasciola* sp.). Without adequate drainage the population of elk in the project area would decrease.

Direct and indirect effects –Culverts replacement/installation

Culvert repair/installation will help maintain the overall drainage of the area, provide for better access and more efficient pasture mowing. Pasture will be able to be mowed earlier then when it is currently done, allowing for increase in higher quality forage. This will in turn provide for overall better habitat for elk.

Disturbance associated with construction is described in paragraph 2 of this wildlife report.

Direct and indirect effects - Koepke channel restoration

The construction of a channel across the back pasture would help alleviate the continued saturation of the area under both options. The area would function as stream habitat and less like wet pasture land. Stream organisms such as fish would have year around access to Koepke Creek, which in turn would provide a food source for species such as mink (*Mustela vision*).

Indirectly the project would benefit elk, by providing better passage to the pasture east of C-6 ditch. This area is currently dominated by reed canary grass and this action will allow the area to be mowed. See paragraph 2 for information on construction disturbance.

Direct and indirect effects - Tree Planting

Three sites have been identified for tree planting. These sites are used frequently by elk during the summer as loafing areas where they spend time digesting grass outside of the direct heat of the sun. These areas are experiencing continuing tree loss and very little recruitment. The recruitment of additional trees in the areas will have a positive effect on a number of species including neotropical and resident birds, which forage and nest in the remaining trees.

Direct and indirect effects - Upland Meadows

Three options for upland meadow creation exist. All three would meet the goals of providing additional forage outside of the lowland pastures. Option 1 and 2 would have the additional benefit of providing a potential commodity. Option 3 would be the most difficult to maintain due to the lack of road work and the presence of stumps post action.

The creation of some additional forage areas outside of the pastures will serve two primary purposes; first it will give the elk herd additional forage areas outside of the wet pasture lands, second it will provide some increased forage opportunities in an area dominated by forest habitat. This is particularly important for pregnant cows that select secluded areas for giving birth. This project will have a positive effect on elk, deer, bear and other species who utilize forest edge and early seral vegetation.

The project will involve removing less then 10 acres of decidous forest habitat dominated by red alder and salmonberry. Currently this area provides potential habitat for numerous species including the White-footed vole (*Arborimus albipes*) which is recognized as a bureau tracking species and species of concern by the State of Oregon. It is expected that the decline in alder will lead to local decrease in white-footed vole population. This habitat loss is naturally mitigated by the large number of red-alder dominated stands in the immediate area of the proposed project.

Direct and indirect effects - Noxious weed control

The effects to wildlife of using 2,4-D for noxious control is described in the Coos Bay Integrated Noxious Weed Program (EA OR 120-97-11) which is tiered to BLM's Northwest Area Noxious Weed Control Program FEIS 1985, Supplemental FEIS 1987, and their Records of Decision. No adverse direct to wildlife are anticipated as a result of biological, manual, mechanical and chemical weed treatments. There would be some loss of berry producing plant if Himalayan black berry is treated. A number of wildlife species utilize this plant as a food source. The loss of some plants would be naturally mitigated by the wide spread proliferation of the plant, throughout the project area and surrounding area.

Direct and indirect effects - Waterfowl basin structure repairs

The repair of the waterfowl basin will have positive effects to numerous waterfowl, including ducks, geese and shorebirds. The repair will allow for a consistent water depth during the winter and early spring, when birds are moving through the area. The area will provide nesting, resting and feeding areas. Waterfowl nesting on the island in the center of the basins will have a greater chance of avoiding predators leading to an increase in resident ducks.

Direct and indirect effects – Prescribed burning

Short term negative impacts to species from prescribed burning would include smoke, noise disturbance and physical disturbance from the presence of machinery and people. These disturbances will be temporary and once the action is complete wildlife will return the area of disturbance.

The typical burn pattern is anticipated to be somewhat mosaic, ranging from areas with all vegetation removed to lightly disturbed areas. Due to the lack of forage, the area may be avoided until fall rains produced a flush of new growth. The burn will recycle nutrients, which are expected to benefit the new growth of vegetation. More importantly, the burn will remove excess thatch that current inhibits growth over much of the pastures.

Undoubtedly there will be loss of some individual animals during the burn. It can be expected that some amphibians, reptiles and small mammals will be lost during the burning. The loss of individual animals will not result in a decline at a population level.

Cumulative Effects:

Implementation of the proposed action would not have any appreciable negative impacts to any wildlife species including those listed as threatened or endangered. While the proposed action will lead to temporary disturbance to some wildlife due to construction, the impacts will be short lived and minor.

Active pasture management should begin to reverse the trend of diminishing forage quality. Infrastructure updates (dike repair, culvert replacement) will allow for more efficient mowing, earlier in the year which will improve forage quality for elk.

The application of soil amendments and the use of herbicides on noxious weeds are not expected to have cumulative impact wildlife as long as best management practices are followed and the chemicals are applied under controlled conditions according to manufacturer's instructions.

4.4 Botany

The following report is an abbreviated version of the botany report. The full report is in the analysis file for this EA.

No Action Alternative:

Habitat would continue to follow the progressive successional stages that are typical of mature Sitka spruce fragmented forest. There would be no negative impacts to special status or S&M botanical species as a result of leaving proposed project area in its present condition.

Proposed Action Alternative:

Vascular and Nonvascular plant species

Direct and Indirect effects - Pasture management

Plowing an area for the purpose of reducing the buildup of undesirable vegetation in the proposed project area will increase the vulnerability to infestation by exotics from nearby existing populations. Some herbaceous species and possibly some nonvascular species may have reduced vigor from the altering of the microclimate, while other herbaceous species may flourish.

Direct and indirect effects – Prescribed burning

Burning an area for the purpose of reducing the buildup of undesirable vegetation in proposed project area will increase the vulnerability to infestation by exotics from nearby populations. Exotics which thrive in the resulting disturbed soils and already existing open light conditions. Some herbaceous species and possibly some nonvascular species may have reduced vigor from the altering of the microclimate, while other herbaceous species may flourish.

Direct and indirect effects – Dike repair

The removal of the alder and spruce trees would open up an area which will increase the vulnerability to infestation by exotics, which thrive in the resulting disturbed soils and brighter light conditions. This action would likely decrease macrolichen and bryophyte diversity in that area. Some herbaceous species and epiphytes may have reduced vigor from the altering of the microclimate, while some species of herbs and shrubs will flourish from the increase sunlight. Eventually, as it is a fairly small area that will be disturbed, conditions will come to approximate the current conditions through time.

Direct and indirect effects – Culvert installation

All of the waterways within the DCEVA have been previously surveyed for any special status plants and although the habitat exists within the proposed project areas, no special status plants have been located.

Direct and indirect effects - Koepke channel restoration
Proposed channel restoration would increase the vulnerability to infestation by exotics from nearby populations. Exotics which thrive in the resulting disturbed soils and already existing open light conditions. Some herbaceous species and possibly some nonvascular species may have reduced vigor from the altering of the microclimate, while other herbaceous species may flourish.

Direct and indirect effects - Waterfowl basin structure repairs
Proposed culvert replacement does not require pre-disturbance botanical surveys (BLM 2003). Although habitat is potentially present, surveys for special status plants have been already been completed and none were located.

Direct and indirect effects - Tree Planting
No direct or indirect impacts to Special Status, S&M or T&E plants are expected.

Direct and indirect effects - Upland Meadows
The proposed project area consists of a mixed conifer-mix forested area of around 50 years of age. Ground disturbance will increase the vulnerability to infestation by exotics, which thrive in the resulting disturbed soils and brighter light conditions. Trees falling will cause some ground disturbance in addition to causing a loss of habitat for the epiphytic species in the canopy of the individual trees being felled. However, since the area proposed to be cleared should not exceed 5 acre, adjacent trees and stands which probably have similar epiphytic species richness and abundance as the trees selected for falling had and should provide adequate habitat for the continuance of those epiphyte species. As the felled trees are removed and the huckleberry, sword fern and salmonberry are removed from site, the action would allow more light of the understory and/or forest floor, thus resulting in higher photosynthesis rates for the residual native plants to re-colonize.

Direct and indirect effects –Culverts replacement
Proposed culvert replacement does not require pre-disturbance botanical surveys (BLM 2003). Although habitat is potentially present, surveys for special status plants have been already been completed and none were located.

Direct and indirect effects - Noxious weed control
No direct or indirect impacts to Special Status, S&M or T&E plants are expected.

Cumulative Effects:
No direct, indirect, or cumulative impacts to Special Status, Survey and Manage and T&E plants species are expected.

Mitigating Measures
Guidelines for management for any Special Status species would be implemented either under the Final Supplemental Environmental Impact Statement (FSEIS 2004) or under the Record of Decision (BLM 2004). This level of compliance is to avoid those actions

that would contribute for a need to list a Special Status species as threatened or endangered under the Endangered Species Act.

4.5 Geology/Soils

The following report is an abbreviated version of the geology report. The full report is in the analysis file for this EA.

No Action Alternative:

The "No Action" Alternative would allow existing conditions to continue to progress. The proposed projects would not be implemented. The lack of these actions would have little impact on soils or geology. The exception is the degraded condition of the road to the proposed upland meadow. Potential sediment delivery to the adjacent stream will continue under the "No Action" Alternative.

Likewise, failure of the dikes and culverts could deliver dike material to the adjacent ditches. However, these systems are controlled by tidegates. The material would settle in the ditches before traveling through the tidegates and reaching the Umpqua River system.

Chronic flooding of the soils, a result of the "No Action" Alternative would create additional potentially "low-quality" wetlands (i.e., low functional value). Loss of dikes would allow for more widespread and longer duration flooding.

Proposed Action Alternative:

Direct and indirect effects – Pasture Management
Pasture management and associated activities (fertilizing, liming etc.) would have little environmental impact to the soils and geology. Equipment operation is a current function of DCEVA management and use of equipment in this management would not increase effects beyond current operating levels. To avoid potential compaction in the pastures the following is recommended.

Recommendation:
Tractor operations (plowing and rototilling) should be limited to the times of least amount of soil moisture.

Direct and indirect effects – Prescribed burning
Provided that the vegetative buffers described in PDF section are followed this action should have no direct or indirect impacts on existing soil or sediment conditions.

Direct and indirect effects – Dike repair
The impact to soils from this project relate to storage and disposal of fill material and erosion control during construction. Construction on dikes and culverts could temporarily deliver dike material to the adjacent ditches. However, these systems are

controlled by tidegates. The material would settle in the ditches before traveling through the tidegates and reaching the Umpqua River system. The effect would be temporary, occur in the instream work period, and be confined to drainage ditches.

Any soils exposed beyond a day during construction would be protected from diurnal tidal flow. Failure to do this could allow excessive discharge of sediment to the drainage ditches and sloughs. Protection could include a water management plan and/or covering of the soils with geotextile to protect them from tidal influence. The Project Design Features will mitigate these concerns, therefore there would be minimal to non-existent impact to soils.

Soil disposal and storage sites will implement Best Management Practices, as described in the BLM RMP, specifically that the soils be stored such that sediment migration is not possible. All disturbed soil will be mulched and seeded or otherwise covered to prevent erosion. Storage sites would implement at least a 40-foot vegetative buffer between the exposed soils and surface water. Therefore this action would have no direct or indirect impacts on existing soil or sediment conditions.

Direct and indirect effects – Culvert installation
The effects of culvert installation are similar to those described under the Dike repair.

Direct and indirect effects - Koepke channel restoration

Option 1 would construct a new channel, connecting the stream to the C-6 ditch system. Sinuosity Index would be applied to stream form, reducing potential erosion arising from the system establishing its own pattern. It can be expected that some temporary sediment delivery would occur to surface waters from the freshly excavated channel. However, the soil is non-erosive, requiring elevated entrainment velocities. Additionally, sediment would be delivered to the connected drainage ditch. The material would settle in the ditches before traveling through the tidegates and reaching the Umpqua River system. Excavated soil should be placed such that it does not enter the fluvial systems.

Option 2 would be similar to Option 1 except that the connection would be to Koepke Slough, with the C-6 ditch being blocked. Sediment concerns are the same as Option 1.

Direct and indirect effects - Waterfowl basin structure repairs
These activities may create hydric soils or enhance hydric soil properties by extended inundation of the soils. However, the minimal flood velocities should not cause any sediment transport. Historically, the soils have been inundated, with characteristics of wetland soils. Therefore, there should be no environmental concerns to soil or geology from this management action.

Direct and indirect effects - Tree Planting
This activity is anticipated to have no impact to soils or geology.

Option 1 allows for reconstruction of pre-existing roads, harvest and removal of the timber, equipment plowing of the soil, and planting. Reconstruction of the road would prevent the current erosion of the surface, providing for the placement of waterbars. This action would improve the existing environmental conditions, mitigating sediment erosion from the present condition. Equipment operation may cause some compaction. However, the soil will be decompacted by plowing. Access to the road after harvest is restricted by current public restrictions of all roads in the DCEVA. Road construction will be done in the "dry season", preventing sediment movement. Provided that the seeding and mulching of exposed soil and vegetative buffers described in the Project Design Features (PDF #5&7) section are followed this action should have no direct or indirect impacts on existing soil or sediment conditions.

Option 2 allows for the trees to be removed by firewood cutters via winch. Road reconstruction would be completed. The impacts to soil and geology would be the same as Option 1 except for impacts due to winching trails. Ground winching will cause ground disturbance. Project Design Feature number 8 was designed to mitigating any potential impacts from winch trails.

Option 3 would not allow the use of mobile equipment. The road would not be reconstructed, leaving it in its present condition. The impacts would be the same as the "No Action" Alternative, specifically allowing a potential avenue for sediment delivery from the current roadbed.

Recommendation: Water-bar the access road under Option 3 to alleviate erosion concerns.

Direct and indirect effects –Culverts replacement
The effects of culvert installation are similar to those described under the Dike repair.

Cumulative Impacts:
Based on the assumption that all design features are implemented and Best Management Practices are followed, there should be no cumulative impacts to native soils or cumulative impact regarding sediment delivery. In the event that sediment is delivered to surface waters within the DCEVA, the waters are isolated from other surface waters by wetlands, dikes, and tide gates, negating cumulative sediment delivery to the Umpqua River.
Other foreseeable actions in the action area include a federal proposal to construct a waterline from Reedsport to the DCEVA. As proposed, the waterline will not add any cumulative effect to the actions proposed under this analysis.

4.6 Fuels

No Action Alternative:

Direct and indirect effects- Prescribed burning
Under the no action alternative, no direct long or short term consequences to the fuels and fuel loadings of the proposed project areas should occur. No short or long term affects to air quality would occur.

Under the no action alternative, no indirect short term consequences to the fuels and fuel loadings of the proposed project areas should occur. No indirect long or short term affects to air quality would occur.

Proposed Action Alternative:

Direct and indirect effects - Prescribed burning
Under the proposed action alternative, there would be a short term (one to three days) impact to air quality, potential degradation of visibility along heavily traveled State Highway 38, potential disturbance to elk herds and impacts to tourism during each phase of burning. Conditions would be expected to rapidly improve following the completion of each phase of burning activity though lingering smoke may extend the potential impacts.

Prescribed burning would help control the spread of reed canary grass and eliminate the thick layer of thatch. Repeated late autumn or late spring burning for several years can control this species. Annual burning may be needed for 5-6 years before good control is apparent. Prescribed burning allows native species that are present or seeded-in to compete successfully. *Hutchison, M. 1992.*

Smoke from any prescribed fire activities would contribute to minor short term increases in particulate matter in the surrounding airshed and neighboring communities. Prescribed fire activities would be conducted in compliance with the Oregon Smoke Management Plan, (OAR 629-43-043) and when done in compliance with Smoke Management guidelines any impacts from burning should be minimized.

Broadcast burning in Dean Creek would typically occur during August and September, during the peak of the national and regional wildfire season. Fire fighter and equipment availability will be a potentially serious issue to overcome. During extreme seasons of wildfire activity (preparedness level 4 and 5) approval to burn must be obtained at the regional and national level and could possibly be denied forcing burning to take place under less than optimal conditions.

Cumulative:

Repeated burning of pasture would work toward the eventual elimination of the heavy thatch buildup and would promote development of better quality pasture. Over time with

repeated treatments, invasive species like reed canary grass would begin to be controlled and perhaps even eliminated in some areas. Future treatments may need to be less intensive, may be less costly and possibly require less frequency. Elk and other wildlife would be attracted to the higher quality pasture to graze. Viewing of wildlife by the public would be enhanced.

No cumulative affects from smoke would occur as any prescribed burning that takes place would occur spatially over time.

4.7 Recreation

No Action Alternative:

Direct effects – All actions
There are no direct impacts to the No Action alternative.

Indirect effects – All actions
Indirectly, the lack of habitat management (upland meadow creation, mowing, prescribed burning, and pasture management) would lead to lower quality elk forage at the DCEVA, which in turn would equate to a lower population of elk in the immediate area. The primary reason visitors stop is to view elk. It is assumed that once elk become more infrequent visitors at DCEVA, fewer people will stop at the site.

Proposed Action Alternative:

Direct effect – All actions
A number of the proposed projects will involve the use of heavy equipment. This temporary distraction may lower the experience for some users, while others visitors show a great deal of interest in seeing equipment operate. Due to the relative short time that the equipment will be operating the effects are considered inconsequential.

Smoke from prescribed fire may temporarily impact the viewing opportunities of visitors due to the obscured viewing conditions and the temporary displacement of elk. These impacts will be short lived as new grass growth is expected to rapidly reoccupy the burned area and elk will immediately return to nearby underburned patches once the project is over. Pile burning conducted during the summer of 2003 displaced the elk only during the operation after which they immediately returned to the area.

It is not anticipated that the upland meadow creation will be visible from the lower pastures, therefore there are not affects to VRM with this action.

Recommendation:
In order to impact the least amount of visitors possible the burning project should be planned for mid-week.

4.8 Cultural Resources

No Action Alternative:
Cultural resources would be unaffected by the No Action alternative as no ground disturbing activities would take place.

Proposed Action Alternative:

Direct and indirect effects – All actions
There are no known cultural resources in the action area and therefore, there are no anticipated effects to the proposed action. If potential cultural resources are encountered during the course of this project, however, all work in the vicinity shall stop and the District Archeologist will be notified at once.

4.9 Noxious Weeds

No Action Alternative:

Direct and Indirect effects - Noxious weed control
Noxious weeds would continue to be controlled, per the Coos Bay Integrated Noxious Weed Program (EA OR 120-97-11), as projects, acknowledged in the1993 Dean Creek Elk Viewing Area-Activity Management Plan (DCEVAMP) and the 1998 Amendment to that plan, are implemented. If manual and/or mechanical labor becomes cost prohibited, and chemical application restricted it can be expected that noxious weeds will further spread in the pastures, competing with more desirable forage, leading to an overall decline in wildlife habitat.

Proposed Action Alternative:

Direct and Indirect Effects –All Actions
The use of best management practices, which include seeding and mulching of bare soils to prevent erosion and invasion by noxious weeds, should not promote the introduction and spread of noxious weeds. Pre and/or post treatments of weeds would be considered for each project to reduce the chances of promoting weed populations. These coupled with the ongoing control efforts of noxious weeds at this site should reduce and/or control existing weed populations and prevent the introduction/spread of new weeds.

Cumulative Effects:
Implementation of the Proposed Action would not increase noxious weed populations, and should reduce existing populations because of the action to control existing weed populations and the conversion of pasture lands. All proposed projects include best management practices to reduce the chances of introducing or spreading noxious weeds.

Hazardous Materials/Solid Waste

No Action Alternative:

Direct effects –All actions
There are no discernible effects on Hazardous Materials and Solid Waste from the No Action alternative.

Proposed Action Alternative:

Direct and Indirect effect – All actions
There are no direct effects anticipated. The use of heavy equipment in the performance of the work identified under this alternative creates a risk to the environment as a result of any release of petroleum product, particularly near surface waters. Any such release is governed under the provision of State of Oregon Administrative Rule No. OAR 340-108. A Spill Control and Countermeasure Plan (SPCC) conforming to the standards of OAR 340-108 are required. The SPCC should also correlate to the Coos Bay Hazardous Materials Contingency Plan and the District Spill Plan for Riparian Operations. Included in the SPCC and District plans is the requirement of an oil spill kit to be on site during operations. The contents and use of the spill kit are to be detailed in any contract provisions or work orders resulting from this alternative.

In the event of a release of hazardous substances or petroleum product, migration of the contaminants to the surface waters would create of variety of problems, dependent upon amount and type. Most probable source would be the rupture of hydraulic fluid lines or poor maintenance of equipment, resulting in the leak or discharge of oil. The hydrological pattern (stream, ditch and tide) of the area would dictate how much of the contaminant could be contained, removed or allowed to dissipate. A spill confined to dry land would be contained and cleaned up to appropriate levels.

Under Oregon State Law, a Reportable Quantity of petroleum product to water is defined by the Oregon Administrative Rule No. 340-108-010, Reportable Quantities as: "…any quantity of oil that would produce a visible oily slick, oily solids, or coat aquatic life, habitat or property with oil…." Such a release would generate a series of reporting, response, and monitoring requirements by Federal and State authorities.

Chapter 5.0 List of Preparers

The following BLM staff members were responsible for preparing this Environmental Assessment.

Team Lead	
Kip Wright	Wildlife Biologist
Core Team	
John Colby	Hydrology
Tim Barnes	Geology/Soils
Dan VanSlyke	Fisheries
Support Team	
Bill Elam	Fuels
Bob Golden	Site Manager
Stephan Samuels	Cultural Resources
Tim Votaw	Hazardous Materials
Scott Knowles	Noxious Weeds/Environmental Justice
Jennifer Sperling	Botany
Paul Fontaine	Forestry
Dave Wash	Recreation

Chapter 6.0 Agencies and Persons Contacted

Project scoping involved the public via a December 19, 2003 mailing/e-mail to 71 neighboring landowners and individuals and organizations who have requested to be informed of the proposed project or have a standing request for all scoping notifications. In addition, a notification was published on the Coos Bay BLM district website and The World newspaper. Written responses were received from the individuals and organization listed below. The letters and e-mails are on file at the Coos Bay District Office.

Leo Naapi
Francis Eatherington (Umpqa Watersheds)
Chandra LeGue (Oregon Natural Resources Council Fund)
Robert Rice (Oregon Water Resources Department)

In addition, the following agencies, government officials and organizations have been contacted.

Government
Oregon Department of Fish and Wildlife
Oregon Department of Transportation
Reedsport Chamber of Commerce
Governors Natural Resource Office
City of Reedsport
Douglas County Commissioners
NOAA National Marine Fisheries Service
Oregon Water Resource Department
Oregon Department of Environmental Quality
Oregon Department of Forestry
Oregon Department of Parks and Recreation
South Slough National Estuarine Research Reserve
Confederated Tribes of Grand Ronde
Confederated Tribes of Coos, Lower Umpqua and Siuslaw
Coos County Commissioners
Division of State Lands
ODA Noxious Weed Control Program

Organizations
Sierra Club-Many Rivers Group
Native Plant Society of Oregon
Oregon Natural Resources Council
Kalmiopsis Audubon Society
Western Utility Group
American Rhododendron Society
Coastal Range Association
Ducks Unlimited
Umpqua Discovery Center
Association of O&C Counties
Douglas Timber Operators
Oregon Coastal Wetlands
Umpqua Watersheds Inc

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Appendices

Appendix 1.0 Project, Issues and Alternatives Considered but Eliminated

Project Eliminated

1. The reintroduction of Henderson's sidalcea (*Sidalcea hendersonii)* a bureau tracking species was considered during the planning of the project. Henderson's sidalcea is a marsh plant that is critically imperiled in Oregon. Historically the species was located throughout the Oregon coast from Astoria to the Umpqua River estuary. Currently, it is restricted to a population located along the Siuslaw River. Dean Creek was identified by the Sidalcea hendersonii interest group as a possible location for a reintroduction site. The proposal was rejected at this time because this planning team is focusing activities on the area east of the possible reintroduction site. A subsequent environmental assessment will be done on the west end of Dean Creek where the appropriate habitat is present. At that time, the reintroduction will be readdressed.

2. The installation of nesting structures for Ospreys were considered but eliminated at this time. The planning team is focusing activities in the pasture portion of Dean Creek from the western observation platform to the eastern property line. Much of this area is annually mowed and the team felt that these activities may interfere with the nesting success of the birds. Other team members felt that the nesting structures interfered with "naturalness" of the area, which may be distracting to some visitors. The team agreed to readdress the project during the planning process for the west end of Dean Creek.

3. The placement of oyster shells on the fields to provide a long term source of calcium carbonate to neutralize the acidic soils was considered but eliminated. The overall feasibility of acquiring the shells, crushing the shells and distributing the shell out in the fields was deemed to be too problematic.

Issues Eliminated

1. The use of cattle as a tool for "forage conditioning" during the winter months when the ground cannot support mowing equipment was an issue (# 7) brought up by the public. The use of cattle is an option discussed in the Dean Creek Elk Viewing Area-Activity Management Plan on page 41, which clearly states that "grazing will continue to be applied only if other alternatives are not feasible". This was additionally analyzed in EA #OR125-93-02 which concluded that combining "cattle grazing and mechanical mowing and/or haying" would not have any negative impact to any of the resources. Since the issue has been previously analyzed the team decided not to readdress it. At this time, the use of cattle is still a tool that may be used at some future date.

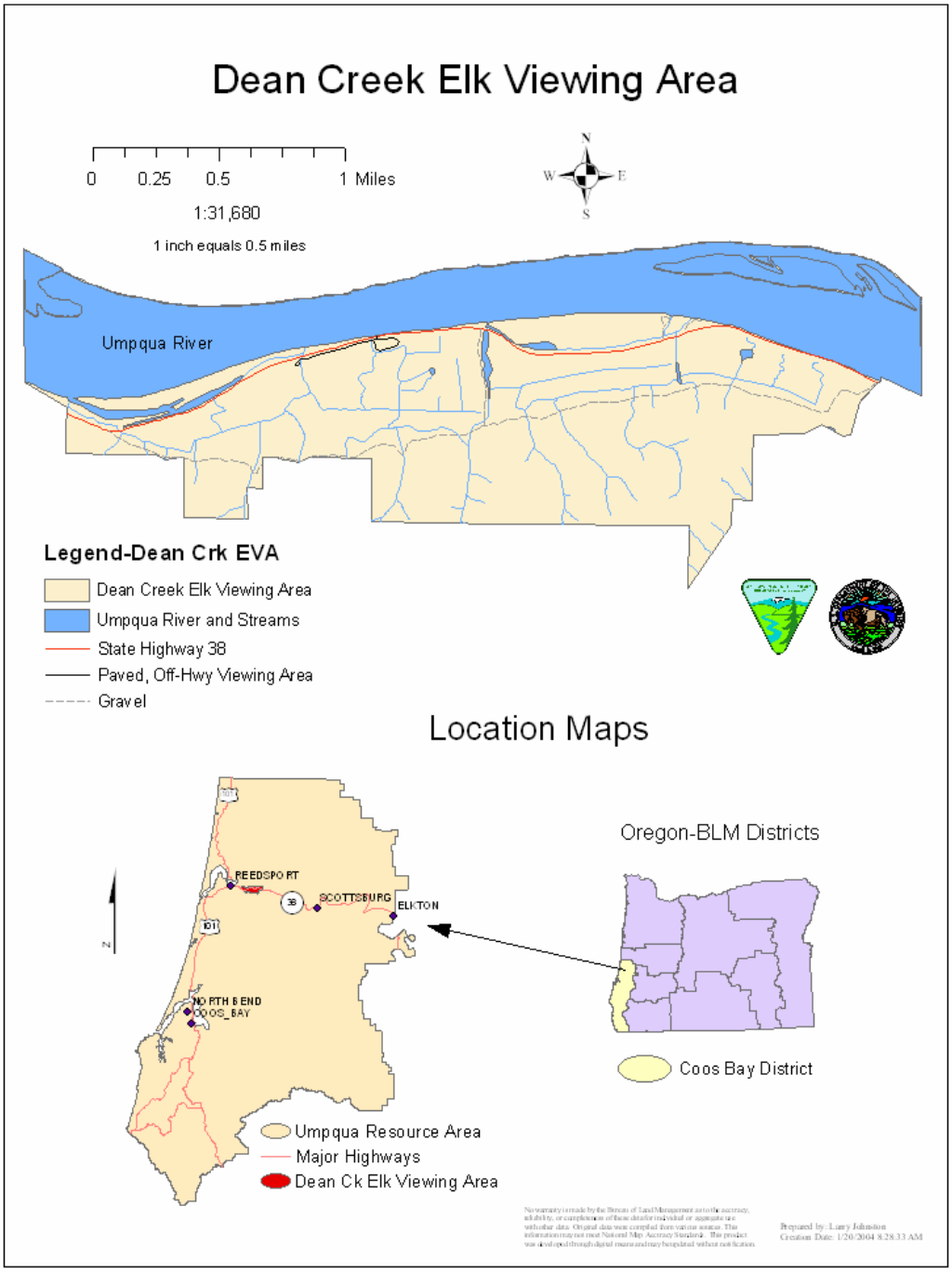
2. Consider a land exchange with willing property owners to the south to allow for greater management efficiency was a issue brought up by a member of the public (issue 8). This issue is beyond the scope of the current project and was not addressed by the planning team.

3. Mowing the "west end" to improve forage habitat for elk was an issue brought up by the public (issue 9). The west end is physically the lowest elevation and wettest terrain in the DCEVA. Mowing in this area is problematic and difficult on equipment. Due to the wet conditions, mowing generally could not commence until mid to late July, after the grass has turned rank and spring growth flush has been missed. Additionally, the area is dominated by reed canary grass a poor forage plant if not kept clipped. Noting the difficult nature of this area, the team decided to re-exam the management of the west end in a future EA.

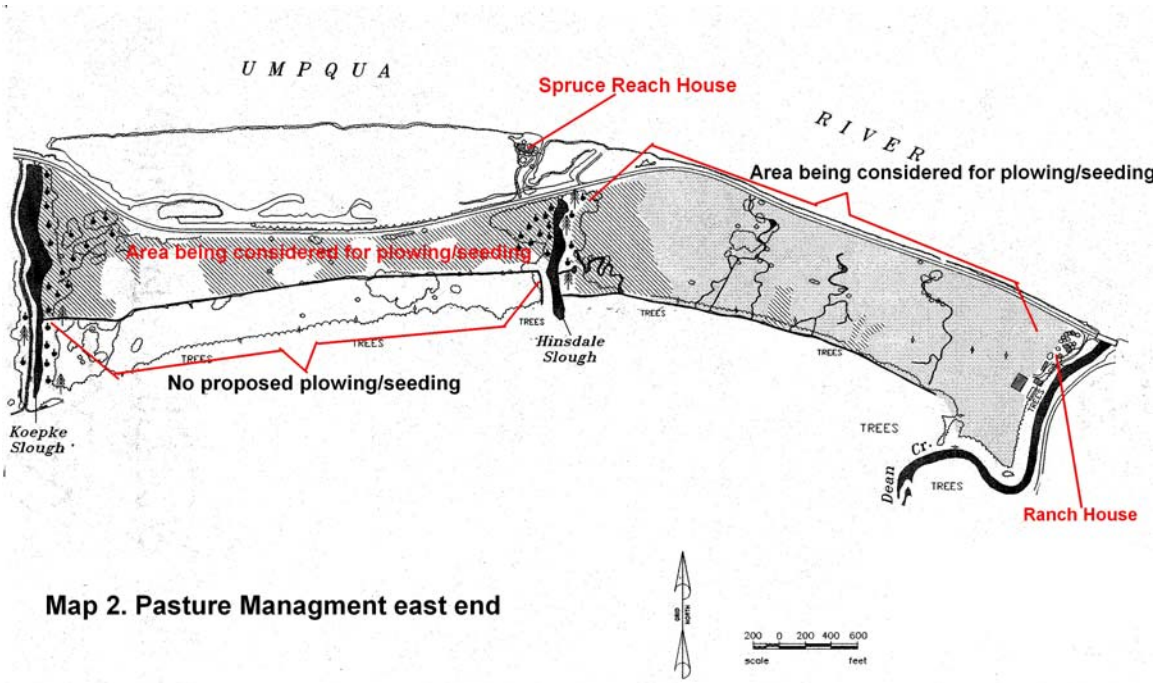
4. The dredging of Koepke and Hinsdale Slough was a project brought up by a member of the public (issue 10). The ID team recognizes that the continuous filling of the two sloughs may increase flooding in adjacent pastures. The process of dredging the sloughs requires permits from the Division of State Lands and the Army Corp of Engineers. A project of this size generally requires a mitigation plan for loss of wetland. Due to the complexity of the project, the team decided to prepare and additional EA addressing this issue at a future date.

5. Maintaining brush on the dikes to help stabilize them was an issue identified by the public (issue 11). While Himalaya blackberry and other plants may provide some root strength to the top layer of the dike, they also provide hiding cover for species that tunnel into the dike like nutria. The team decided to continue with the current vegetation policy which includes reviewing each dike on case by case bases.

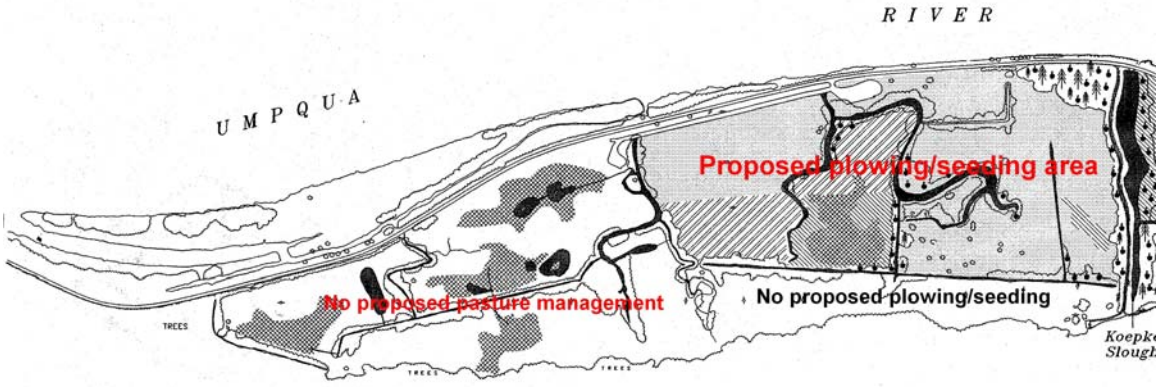
Appendix 2.0 Maps



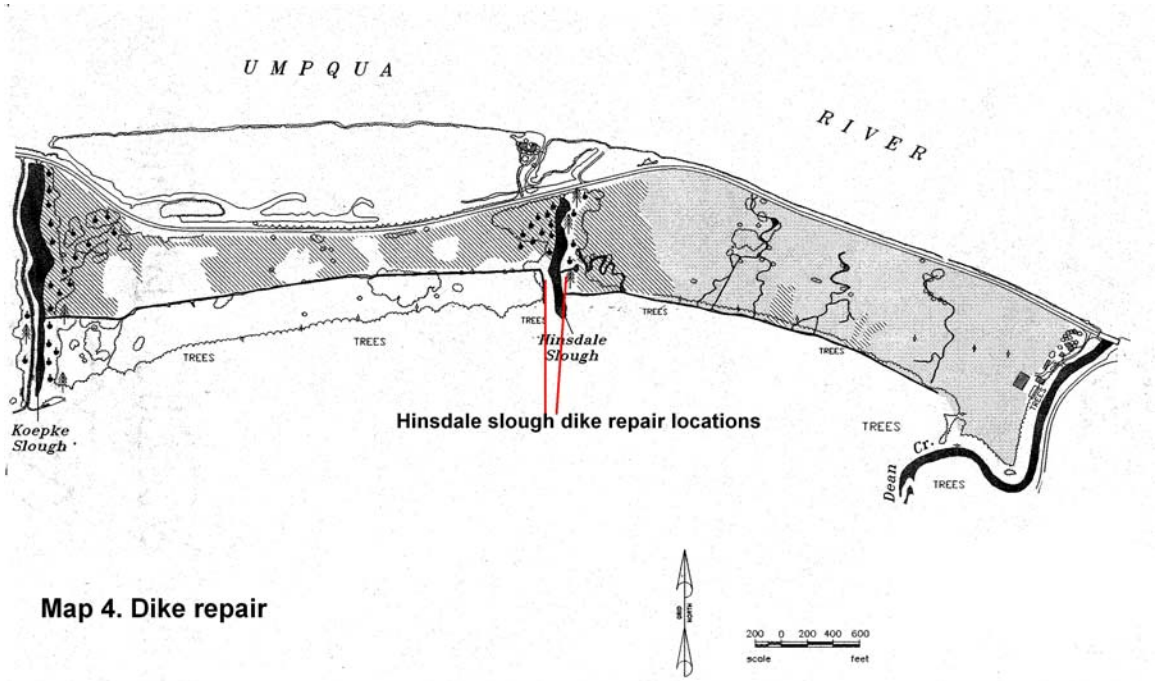
Map 1. Vicinity Map



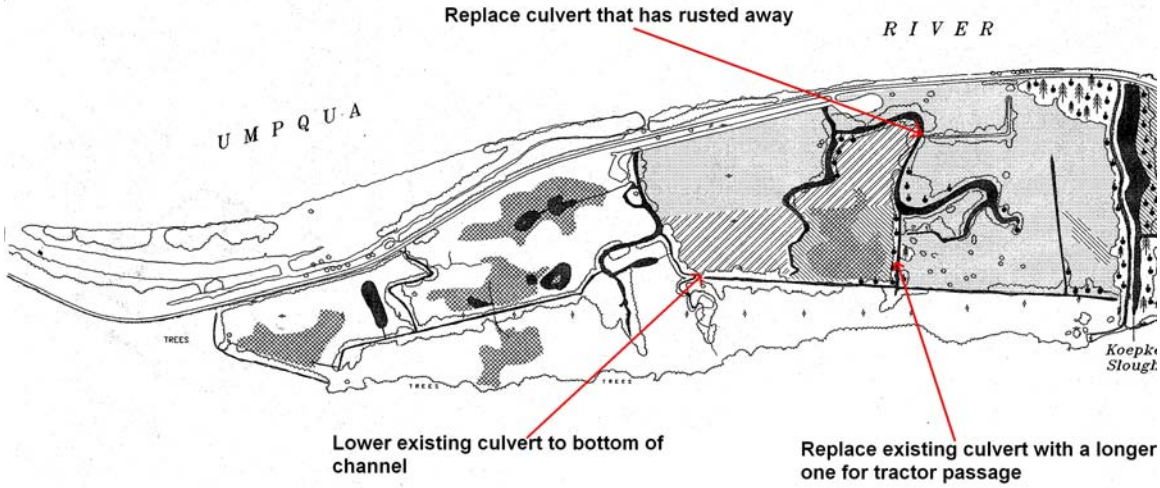
Map 2. Pasture Managment east end



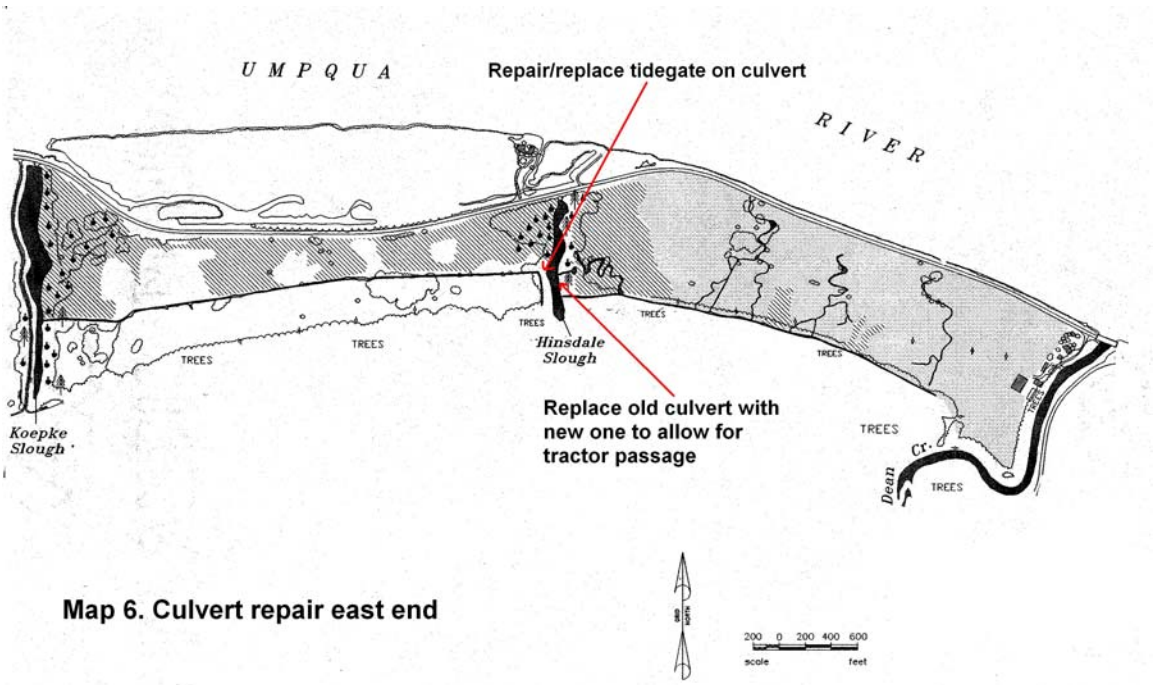
Map 3. Pasture Management west end



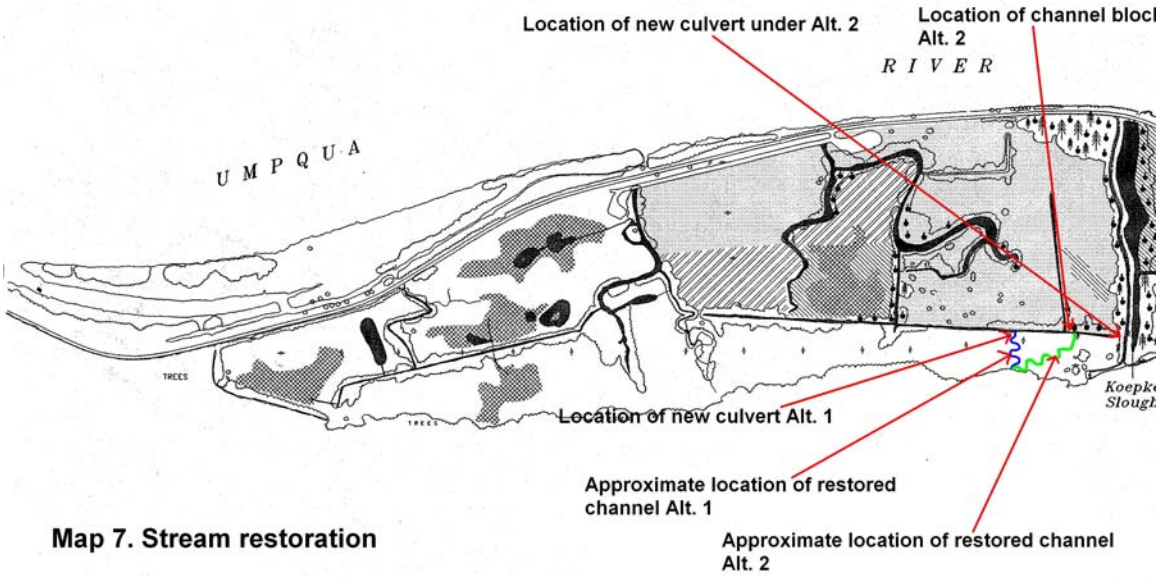
Map 4. Dike repair



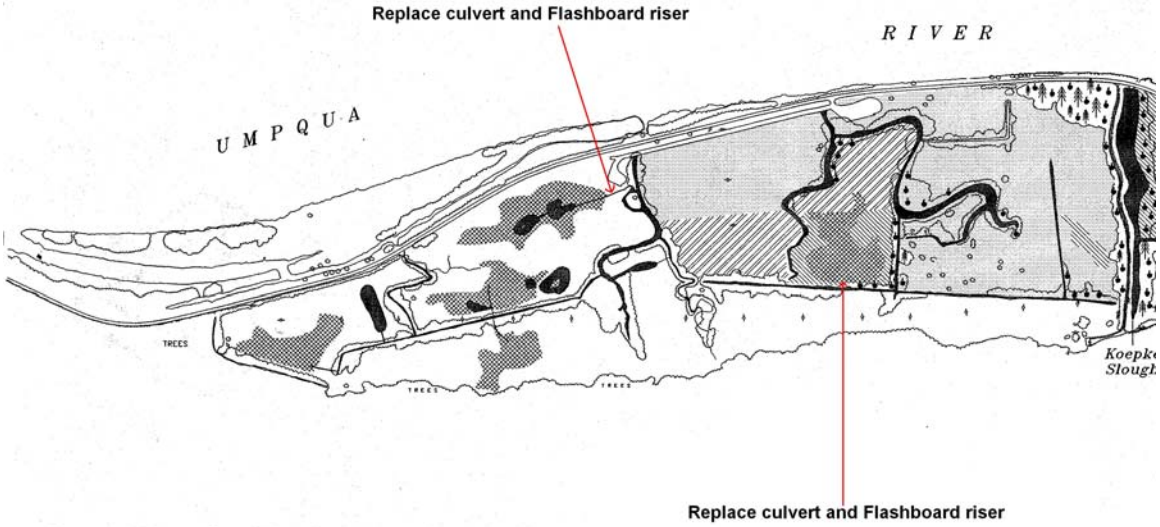
Map 5. Culvert repair west end



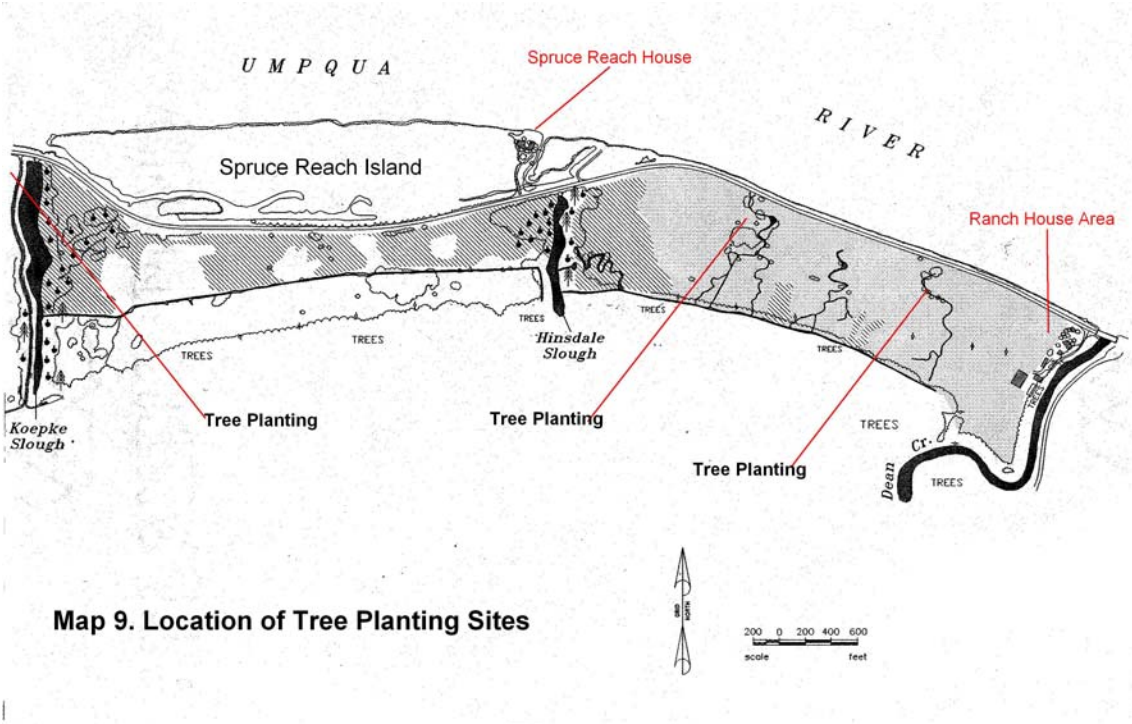
Map 6. Culvert repair east end



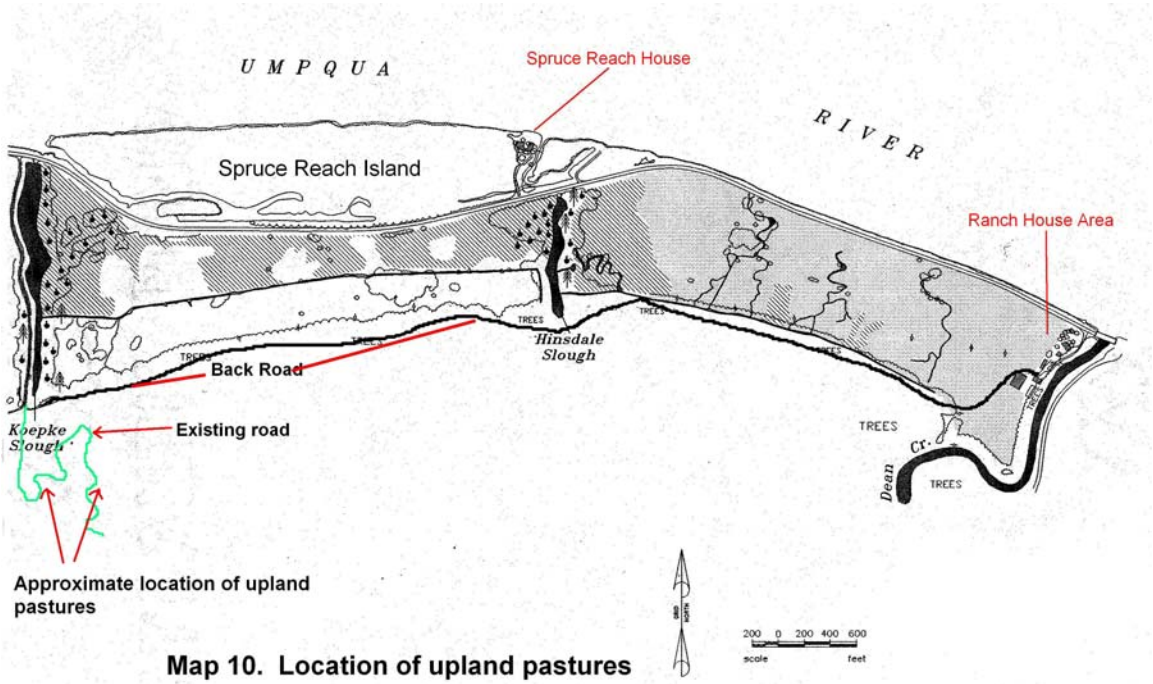
Map 7. Stream restoration



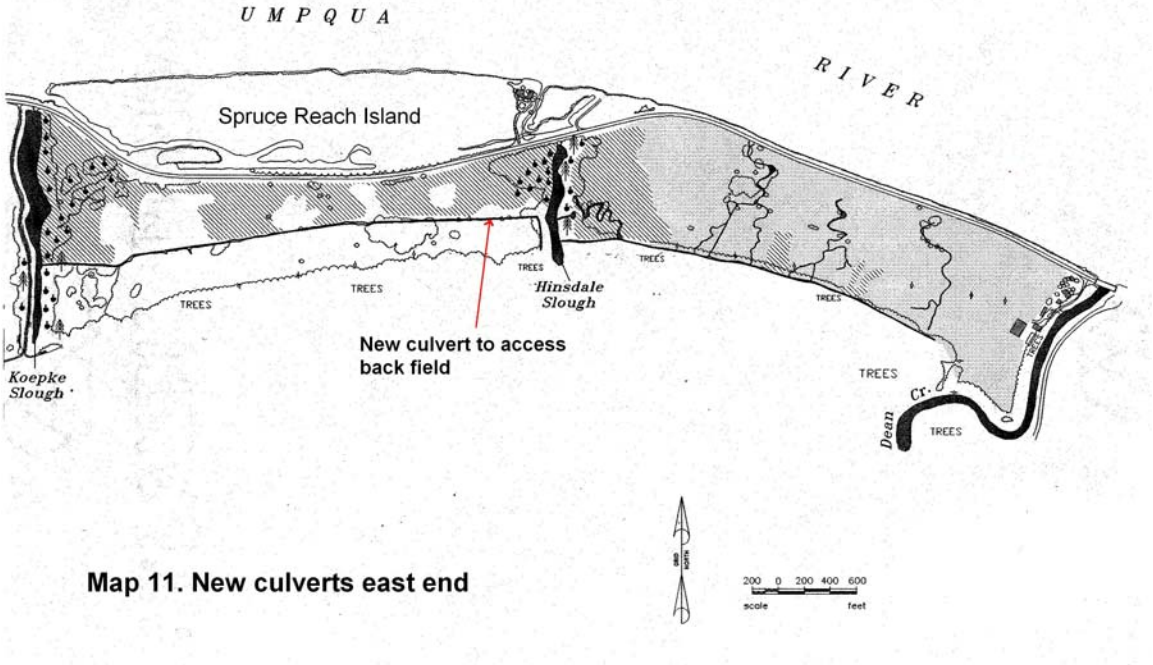
Map 8. Waterfowl basin control structure repair



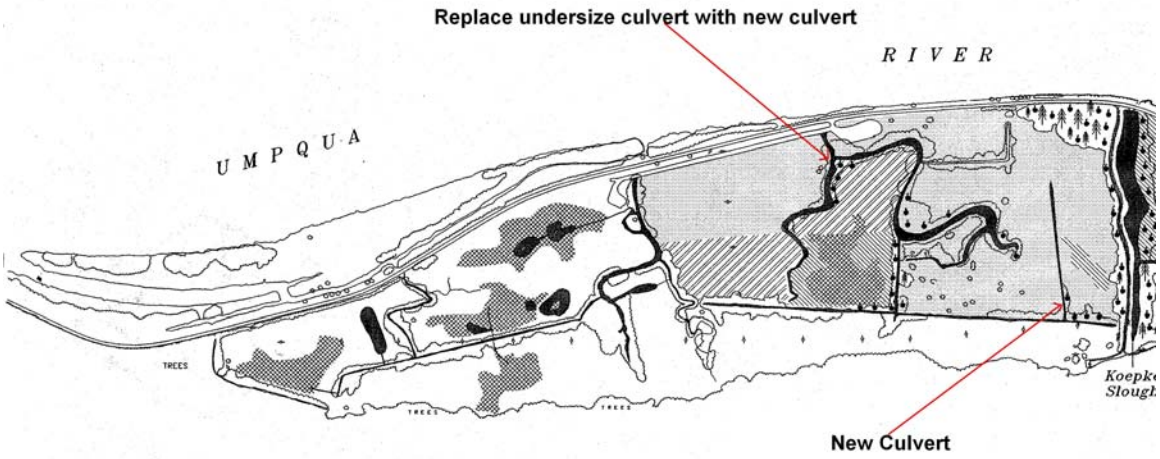
Map 9. Location of Tree Planting Sites



Map 10. Location of upland pastures

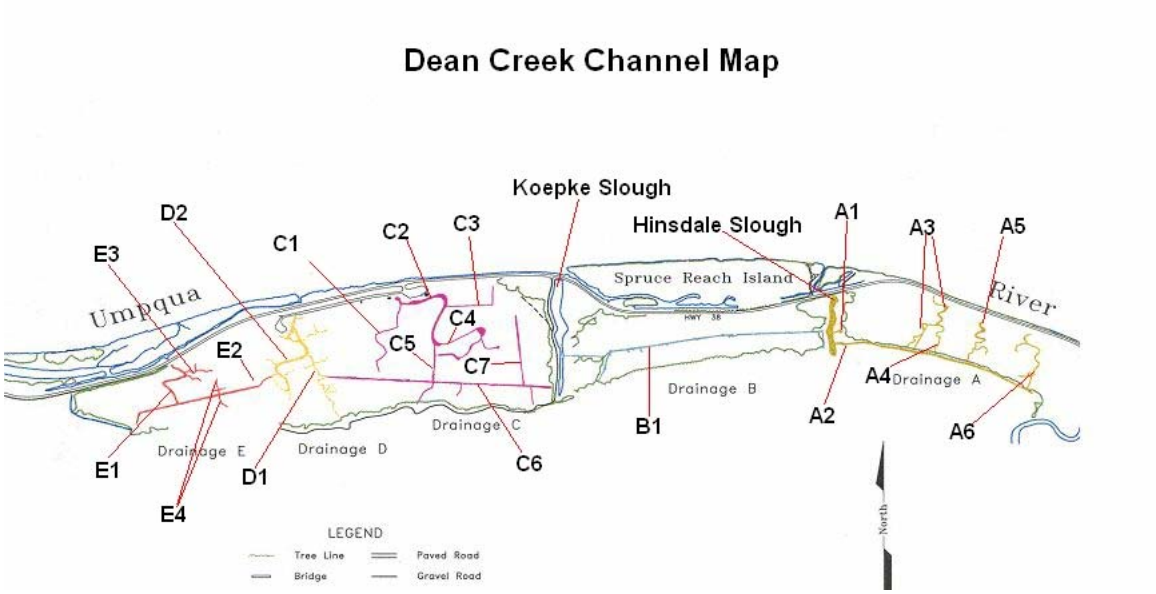


Map 11. New culverts east end



Map 12. New culverts west end

Map 13


Dean Creek Channel Map
Koepke Slough
Hinsdale Slough
Spruce Reach Island
Umpqua
River
D2
E3
C1
C2
C3
A1
A3
A5
E2
C5
C4
C7
A4
Drainage A
Drainage B
A2
A6
B1
Drainage C
Drainage E
Drainage D
E1
D1
C6
E4
LEGEND
Tree Line
Paved Road
Bridge
Gravel Road
North