TER 2 Appendix 1

HEP Team Meeting Notes

LEWIS RIVER HEP TEAM MEETING

August 4, 1999
Final Notes

A HEP Team meeting was held on August 4, 1999 at the Washington Department of Fish and Wildlife (WDFW) office in Olympia, Washington. The meeting began at 10:00 am and concluded at 4:00 pm. The following HEP Team members were in attendance:

Monte Garrett, PacifiCorp
Lauri Vigue, WDFW
Curt Leigh, WDFW
Gene Stagner, U.S. Fish and Wildlife Service (USFWS)
Ron Tressler, EDAW, Inc. (facilitator)

The following four topics were discussed: (1) study area, (2) evaluation species, (3) HSI models, and (4) cover type mapping. Monte Garrett and Lauri Vigue provided comments on the draft meeting notes; these comments have been incorporated into the final notes.

Study Area

Monte presented a revised study area map.
The Team decided to recommend to the Terrestrial Resources Group that the Primary Study Area be expanded slightly
The Team decided that the HEP Study Area should include areas deemed important for wildlife and will encompass the following portions of the Primary Study Area:

All PacifiCorp and Cowlitz PUD land,
The area north of Saddle Dam and east of Route 503,
U.S. Forest Service land at Drift Creek and Pine Creek,
The north side of Swift Reservoir from the shoreline to the primary study area boundary,
Other lands included in an assessment being conducted by PacifiCorp, and
Eagle Island.

PacifiCorp is in the process of purchasing 6 sections of digital orthophotography from the Washington Department of Natural resources. WDFW will create a seamless GIS coverage with other sections that comprise the study area and provide it for PacifiCorp for use during the HEP study.

Evaluation Species/Models

The bullfrog will not be included in the HEP because its water fluctuation variable is in terms of years, not months during a given breeding season.
Pond Breeding Amphibian model (WDFW) will be used with the following modifications:

V2 will be eliminated
V7--year 1 clearcuts will have a value of 0.0
-- year 2 and older clearcuts = 0.5
-- Lauri will confirm these values with amphibian expert
A variable will be added to address water level fluctuation magnitude (Ron will contact Klaus Richter at King County to develop variable)
A combination of transducers at selected wetlands and field checks at other wetlands may be appropriate for evaluating water fluctuations.

The yellow warbler model will be used. All shrub species rated as Facultative (FAC), Facultative-Wetland (FACW), and Obligate Wetland (OBL) will be considered hydrophytic. The variable equation on page 6 should be changed from square to cube root.

The pileated woodpecker and savannah sparrow models require no revisions.
The Cooper's hawk model V2 may be modified based on consultation with species experts. Lauri will discuss possible model revisions with WDFW raptor expert. The Cooper's hawk model will be discussed at the next HEP Team meeting.
Mink model requires no revision. EDAW proposes to use GIS to calculate weighted average tree/shrub cover within 100m of wetlands.
The black-capped chickadee model will include V1 and V2, not V3.
The beaver is not needed as an evaluation species.
The HEP Team will review the elk model and discuss use of the HSI model and/or alternative approach to evaluating elk habitat at the next HEP Team meeting.

Cover Type Mapping

The following modifications will be made to the Preliminary Lewis River cover type classification key:

Mature conifer forest, delete the sentence "Only 1 canopy layer present with trees > 30 ft. tall". Insert "relatively" before "uniform vertical and horizontal texture".
Upland Mixed Conifer/Deciduous Forest, Riparian Mixed Conifer/Deciduous Forest, and Upland Deciduous Forest cover types will be further divided into young stands with trees < 10" dbh, and older stands with trees > 10" dbh.
The riparian vs. upland distinction will be based on 300 ft. from water/wetlands, as opposed to 200 ft.
Nonforested areas have less than 10% forested (20 ft. tall) canopy coverage.

Other Items

Gene indicated that other USFWS representatives may attend the HEP meetings in his place.

The Team proposed revisions to the "Draft HEP Expectations"

The next meeting was scheduled for 10:00 am, November 22 in Longview, if possible.

These notes accurately reflect decisions made at the August 4, 1999 meeting.

Signed:

PacifiCorp Representative	WDFW Representative
Cowlitz County PUD Representative	USFWS Representative

Lewis River HEP Team Meeting
November 22, 1999
Revised Notes

A HEP Team meeting was held on November 22, 1999 at the Cowlitz County PUD office in Longview, Washington. The meeting began at 9:00 am and concluded at 3:00 pm. The following HEP Team members were in attendance:

Monte Garrett, PacifiCorp
Diana MacDonald, Cowlitz PUD
Lauri Vigue, WDFW
Curt Leigh, WDFW
Gene Stagner, USFWS
Ron Tressler, EDAW, Inc. (facilitator)
Colleen McShane, EDAW, Inc. (facilitator)

The following individuals were present during the afternoon portion of the meeting:

Dave Leonhardt, PacifiCorp
Kirk Naylor, PacifiCorp
Lou Bender, WDFW Research Wildlife Biologist

The following topics were discussed: (1) draft cover type mapping, (2) amphibian model, (3) pileated woodpecker model, (4) Cooper's hawk model, (5) mink model, (6) savannah sparrow model, (7) elk model, (8) matching evaluation species with cover types, and (9) HEP Action Item Schedule. A summary of these topics is provided below.

Draft Cover Type Mapping

Ron presented draft maps showing preliminary cover type mapping in the Lewis River HEP study area and provided the HEP Team with a table of acreage estimates for 3 segments of the study area: (1) Merwin, (2) Yale, and (3) Swift (Attachment A). It was agreed that all subsequent versions of this table should include the full name of each cover type not just the codes.

Monte highlighted a number of locations where the depicted HEP study area boundary is incorrect and showed recommended changes to the boundary. Curt indicated that the ownership near Saddle Dam appears to be incorrect.

Ron indicated that there are approximately 400 acres of land that are outside of the terrestrial resources study area but within the HEP study area that have yet to be mapped. Most of this acreage is associated with Merwin.

Eagle Island is also not yet mapped.

Ron also indicated that additional "young upland deciduous" and "young upland mixed" polygons will likely be delineated during another round of internal EDAW review. (Note: discrepancies between boundaries denoting Merwin management allocations and cover types will be rectified in subsequent review. A new overlay will be developed identifying management units included in the Merwin Wildlife Habitat Management Plan).

Curt noted that the "thinned" stands at Merwin are not delineated and that the classification system in the study plan needs to be revised to include a definition of the thinned forest stands (OG thinned, mature thinned, mid-successional thinned, and pole thinned). Ron stated that a definition of "thinned" stands will be distributed to the group for approval and that the mapping will be revised to incorporate PacifiCorp's GIS data on its thinning operations.

It was decided to not include the transmission line ROW that is outside of the main portion of the terrestrial study area in the HEP study area.
All of the parcels in the Cougar Creek drainage that are being considered for acquisition will be included in the HEP study area by extending a "lobe" northward.
Once the GIS HEP boundary and cover type mapping are revised, digital files of the data will be made available to the HEP team.

Amphibian Model
Lauri provided WDFW information on modifications to V7--adjacent land use.
Clearcuts. 2 years old = 0.75
Clearcuts > 2 years old = 1.0

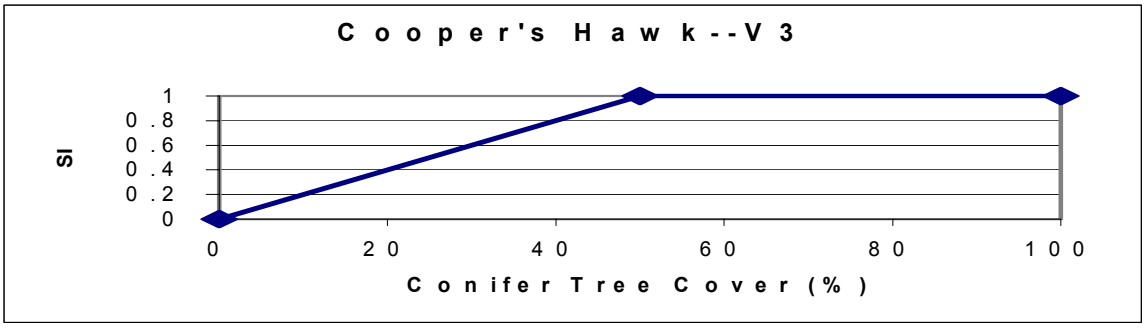
It was agreed that V2 is removed from the model because it does not seem appropriate for the study area Ron provided a proposed SI graph for water permanence (Attachment B). The Team proposed to revise the graph so that a 12-month duration receives an SI of 0.2 and 11 months receives a 0.4 SI. It was felt that permanent ponds, although conducive to ranid frogs, also allow bullfrogs to establish, which is an undesirable outcome. The Team will review the model and come to the next meeting prepared to make a final decision. (*Lauri will check with WDFW amphibian experts)*

The issue of water level fluctuation was discussed. It was agreed that whether the variable is included in the amphibian model or not, some data collection should occur at selected wetlands. Gene offered to investigate a "low tech" staff gauge to document fluctuation during the February to April egg rearing period *(Note: this information has since been emailed to the HEP Team).*

Pileated Woodpecker
Lauri will review the HSI model with consultation from a WDFW species expert. Lauri will provide the HEP team with suggested modifications at the next meeting. It is anticipated that the revisions would be small changes to the SI functions and not complete variable replacement.

Cooper's Hawk
Lauri provided a table of suggested HSI model variable stand conditions in western Washington prepared by WDFW biologists.

The Team discussed the variable V3 that currently shows habitat quality decreasing with increasing conifer forest. It was generally agreed that this function is not correct for the Lewis River HEP study. Lauri provided a proposed modification to V3 SI function as follows:



Due to the problems with the Cooper's hawk model, it was decided that the Team would review other potential evaluation species to represent alder-dominated forest communities. This species list includes downy woodpecker, varied thrush, Swainson's thrush, and Hammond's flycatcher, as well as any other species that individuals on the Team believe to be suitable. Team members will come to the next meeting prepared to make a final decision on inclusion of the Cooper's hawk as an evaluation species and any replacement species.

Mink Model

It was decided that the larger riverine areas of the study area (Lewis River upstream of Swift and Lewis River downstream of Merwin) would be treated like lacustrine habitat, with habitat only occurring in the 100m buffers around the shoreline. Mink habitat the bypass reach and smaller tributaries will include the riverine habitat and the area within a 100m buffer of the water.

Swift No. 2 Canal will not be included as suitable habitat.

Savannah Sparrow Model

The "Agriculture" cover type will be split into "Pasture" and "Other Agriculture" to ensure that habitat appropriately included in the HEP analysis for this species.

Elk Model

Lou Bender, WDFW Research Biologist, described a new elk model that WDFW proposes as a replacement for the existing elk HSI model. WDFW's new model is a revised version of the approach used for the Interior Columbia Basin Ecosystem Management Plan (ICBEMP) process. It is a GIS-driven Bayesian Belief Model that predicts the probability of a given management unit providing elk habitat, ranging from a low of 1.0 to a high of 3.0.
The model is best applied to units ranging in size from 640 acres (1 sq. mile) to 4,000 acres. This means that a number of logical management units will need to be established for each project reservoir, depending on topography, ownership, and existing management actions.
The input variables are based on GIS-derived values for the following: (1) C20--Forage Area, (2) A13--Forage Modifier, (3) B30--Cover Area, (4) B13--Visual Buffer, and (5) B11--Road Densities.
Lou explained that the input for each of the variables is as follows:

Forage Area Percent of management unit that is composed of forage cover types.
Forage Modifier Percent of the forage habitat that is actively managed for big game forage.
Cover Area Percent of management unit area that is composed of cover types that provide cover for elk (not limited to thermal cover)
Road Density Number of miles of roads per sq. mile in each management unit
Visual Buffer Proportion of total road length with visual buffering from topography or vegetation.

Lou indicated that the model runs on software available at www.norsys.com
Note: Lou subsequently provided an email with the actual western Washington Elk model to load into the software, including a revised road density function.)

Diana asked if there was concern in "mixing" HSI models with the new elk model in the HEP study. Other Team members felt that it is not a problem to use the model.

Curt stated that WDFW is comfortable with using the new elk model instead of the original elk model. However, Monte, Kirk, and Gene want to spend some time looking at the model more closely prior to making a final decision on its use.

Evaluation Species/Cover Type Matrix
Colleen provided the Team with a preliminary matrix of cover types which provide habitat for each of the evaluation species (Attachment C).
It was agreed that discussion of the elk, Cooper's hawk, and pileated woodpecker cover types should wait until other decisions are made regarding these species.
The Team discussed several changes to the table as follows:

-add Palustrine Forested Wetland as habitat for the yellow warbler
-add Palustrine Unconsolidated Bottom (pond) as habitat for the mink
-add Palustrine Forested Wetland and Palustrine Scrub-Shrub as habitats to be evaluated for the Amphibian model.

The savannah sparrow was inadvertently omitted from the table and will serve as an evaluation species for Agriculture, Dry Meadow, Pasture, and ROW types that are dominated by herbaceous vegetation.

Schedule/Action Items
The next HEP Team Meeting is scheduled for January 19, 2000, 9 am to 3 pm, at the USFWS office in Lacey.

EDAW will prepare a proposed definition of "thinned" stands and distribute to the Team by 12/13.

PacifiCorp will revise the HEP boundary and EDAW will revise cover type mapping for distribution approximately 2 weeks prior to the next HEP Team Meeting.

These notes accurately reflect decisions made at the November 22, 1999 meeting.

Signed:

PacifiCorp Representative	WDFW Representative
Cowlitz County PUD Representative	USFWS Representative

LEWIS RIVER HEP TEAM MEETING

February 3, 2000
Final Notes

A HEP Team meeting was held on February 3, 2000 at the U.S. Fish and Wildlife Service office in Lacey, Washington. The meeting began at 9:00 am and concluded at 3:00 pm. The following HEP Team members were in attendance:

Monte Garrett, PacifiCorp
Diana MacDonald, Cowlitz PUD
Lauri Vigue, WDFW
Curt Leigh, WDFW
Gene Stagner, USFWS
Ron Tressler, EDAW, Inc. (facilitator)
Colleen McShane, EDAW, Inc. (facilitator)

In addition, one landowner from the Lewis River drainage observed a portion of the meeting.

The following topics were discussed: (1) November 22 meeting notes revisions, (2) revised cover type mapping, (3) amphibian model, (4) pileated woodpecker model, (5) Cooper's hawk model, (6) elk model, (7) field sampling, and (8) action items and schedule. The following is a summary of these topics.

November 22, 1999 Meeting Notes

EDAW passed out revised meeting notes showing redline and strikeout edits provided by HEP Team members on the draft meeting notes.

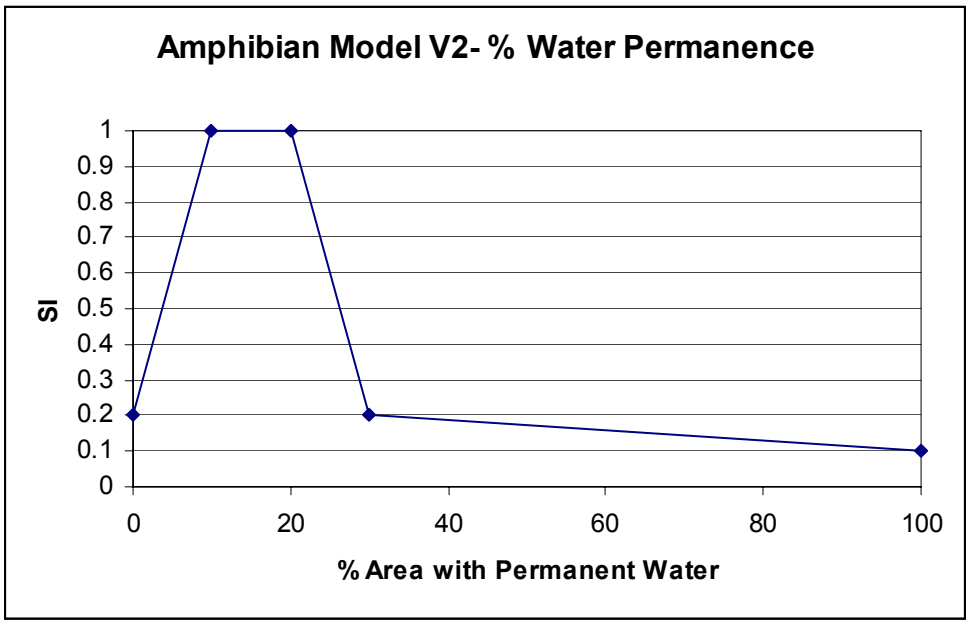
No additional edits were suggested.
EDAW will distribute the Revised notes with a signature page to the HEP Team.

Cover Type Mapping

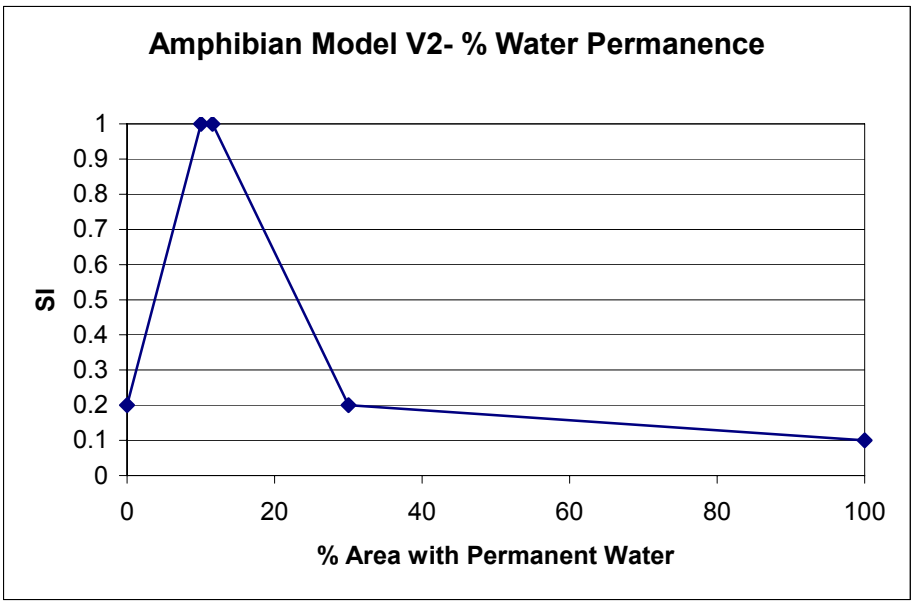
Ron presented the latest version of the cover type maps and provided the HEP Team with tables of acreage and polygon frequency for 7 segments of the HEP study area: (1) Merwin-north, (2) Merwin-south, (3) Yale-north, (4) Yale-south, (5) Swift-south, (6) Swift-north, and (7) Eagle Island. Future versions will provide separate acreage estimates for the area to the south of the Swift No. 2 canal.
Ron indicated that the HEP boundary was modified to include additional area in Cougar Creek.
The Swift bypass reach will be re-mapped to reflect changes caused by the 1996 flood.
Ron also indicated that a separate GIS coverage will depict management goals for the Merwin Wildlife Habitat Management Area; this will allow for overlaying existing cover types with management focus to further stratify habitats.
PDF files of the maps and tables, as well as the Excel acreage tables will be available for downloading from EDAW's ftp site (ftp://ftp.edaw.com) in the "pub\Lewis River\" folder.

Amphibian Model

Lauri indicated that WDFW amphibian experts believe that the model should stress the importance of maintaining approximately 10% of the open water on a permanent basis.
It was agreed that V2, which was removed from the model at the last meeting, should be added back in but modified as depicted below.



Monte suggests the following edit to more accurately portray what the amphibian experts suggested (first bullet above, 10%). This will be discussed at later HEP Team meetings.



The variable V1 will be included as indicated in the model.

Pileated Woodpecker

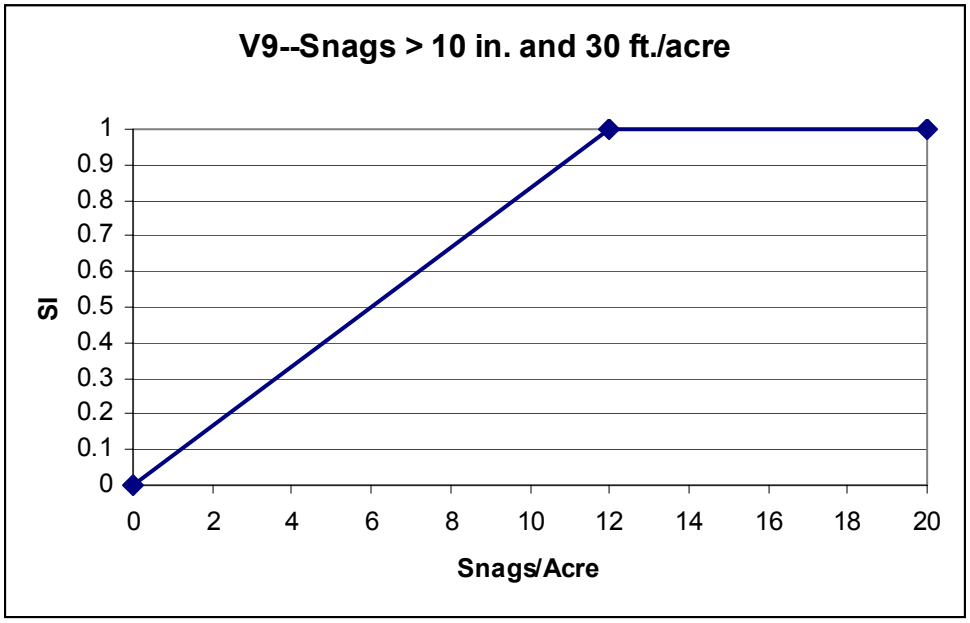
Lauri provided information from WDFW species experts that describes nesting and foraging habitat requirements. Changes are based on home range recommendations from Kathy Raley, USFS, nest or roost trees ≥10 per 2158-acre block.

V6 (no. snags > 51 cm) will be included as expressed in the published model. The snag must be hard or a defective live tree.

A new variable—V7—will reflect the presence or absence of snags > 30 inches dbh and 75 ft. tall. The SI function for V7 will be as follows: Abundance less than 0.0046 snags/acre—SI=0.9, Abundance equal to or greater than 0.0046 snags/acre—SI=1.0 . [

A new variable—V8—will reflect the presence or absence of redcedar snags. If one or more snags are redcedar—SI=1.0, no redcedar snags—SI=0.9

V9 will reflect abundance of snags/acre for foraging that are > 10 in. dbh and 30 ft tall. Minimum 7/acre. The V9 SI graph will be as follows.



The final HSI will be calculated using the following equation:

$(((V1 \times V2 \times V3)^{1/3}) + ((V6 \times V7 \times V8 \times V9)^{1/4}))/2$

which represents the average of the reproduction and foraging components.

This HSI calculation represents a change from the published version that uses the minimum of the two equations. The HEP Team agreed that the change was appropriate so that areas that may not represent breeding habitat but do provide foraging habitat receive habitat value.

Lauri indicated that Bruce Marcot and Kim Mellen are currently developing a snag and downed wood model termed "DecAID" and a draft is due out by the end of March. This spring and summer the model will be tested. Lauri will track the development and validation of the model. The Coarse Wood Dynamics Model (westside) (Marcot 1992) is available on the USFS web site: www.fs.fed.us/r6/uma/cwd.

Cooper's Hawk

The Team decided that the Cooper's hawk is not appropriate for the Lewis River study area. Therefore, the evaluation species was eliminated.

The HEP Team also discussed the use of ruffed grouse or great blue heron (Rock Island model) as a replacement evaluation species. The grouse was eliminated because it focuses on small diameter trees and deciduous shrubs. The great blue heron was eliminated because it focuses on human disturbance variables and would not add any significant information.

The Team discussed the importance of large deciduous trees in the study area and concluded that no HEP model adequately addresses the component. Instead of using a model, PacifiCorp proposes to map significant black cottonwood stands and areas with large bigleaf maple during field studies.

Elk Model

Ron provided results of a pilot application of the elk model for Management Unit 5 at Merwin.

Monte indicated that PacifiCorp is comfortable with using the elk model in the HEP study.

All roads will be included in the model—PacifiCorp will identify those gated project roads that receive regular vehicular traffic and should be considered to be "open".

PacifiCorp suggested that the model be used to evaluate winter (Nov. – May) elk habitat only. WDFW and USFWS will consider this approach.

Ron indicated that the most difficult task in using the model is defining what represents "cover" and "forage" in the study area. Ron and Monte suggested that basing it solely on cover type is not appropriate as nonforested areas do not always represent forage and forested areas do not always provide cover. Similarly, some cover types may provide both forage and cover. WDFW and USFWS want to study this issue and get back to the HEP Team at the next meeting.

It was decided that Lou Bender, WDFW big game research biologist, should participate in a site visit to help develop criteria for habitat definitions. Curt Leigh will attempt set up a meeting/site visit for sometime in mid-March.

PacifiCorp will conduct field surveys of open roads to determine the proportion with adequate visual obscurity. EDAW will write a methodology for this phase of the study and distribute in the next several weeks so that after HEP Team approval, surveys can be conducted before leaf-out.

EDAW will provide the Team with preliminary elk management unit boundaries.

WDFW and USFWS stressed that the future management plan for the projects will not necessarily duplicate Merwin's big game focus but will be broader in focus.

Field Sampling Plan

Colleen provided the Team with a Revised matrix of cover types for which each evaluation species will be evaluated. The elk was not included in this table because it is not based on individual cover types. EDAW briefly summarized an analysis of required sample sizes for variables based on data collected at Yale. This assessment indicated a very wide range and general very high numbers needed to obtain "tight" confidence intervals. Curt and Lauri said that their experience is that a pilot study be conducted and that the results be used to identify necessary field sampling effort. There was some discussion on the inherent lack of accuracy/precision with the HSI models.
EDAW will prepare a preliminary sampling plan for the next HEP Team meeting based on the variability, cover type acreage, and polygon frequency data.

Schedule/Action Items

The next HEP Team Meeting is scheduled for April 20, 2000, 9 am to 3 pm, at the PUD office in Longview.
Curt Leigh will arrange a meeting with Lou Bender in mid-March.
PacifiCorp and EDAW will install the "maximum" water level staff gauges at 5 sites—2 in the bypass reach, 1 at Yale Pond, 1 at Banker's Pond, and 1 at Buncomb Hollow wetland.
The week of March 20 is targeted for the elk road visual barrier assessment and amphibian surveys.

These notes accurately reflect decisions made at the February 3, 2000 meeting.

Signed:

PacifiCorp Representative	WDFW Representative
Cowlitz County PUD Representative	USFWS Representative

Lewis River HEP
Notes from March 15, 2000 Meeting on Elk Model Application

A meeting and site visit was held on March 15, 2000 to discuss the application of the elk model in the Lewis River study area. Attendees included:

Curt Leigh, WDFW
Lou Bender, WDFW
Monte Garrett, PacifiCorp
Kirk Naylor, PacifiCorp
Ron Tressler, EDAW

The following is a summary of items discussed.

The model should be considered applicable for both elk and deer; inclusion of deer might change the definitions of forage and cover.

The HEP Team could decide to apply the model for different seasons if desired, but Lou believes that it is best to use the model to assess **overall** elk habitat suitability in the area and does not see a need to analyze the area by season.

Lou clarified that the variable that assesses visual screening along roads need only be applied to the areas that are non-forested forage habitats; any areas with significant tree cover that also provide good quality elk forage habitat are assumed to inherently have adequate screening.

Ron indicated that screening along roads should be conducted prior to leaf-out to assess conditions during the winter and early spring period. This measurement can be used as a conservative estimate of screening.

Roads that are generally closed and only open once every 5 or more years for short-term timber harvest should not be considered as open. It is assumed that elk will be able to adapt to the short-term activity and move back into the area after the disturbance has ended. Curt asked if the concept of providing "escape areas" near timber harvest sites can be incorporated into PacifiCorp's timber management plan so that there would be available security cover during the disturbance. Monte and Kirk indicated that the low level of PacifiCorp harvests does allow for this in planning timber units.

To account for seasonally open roads that are associated with the project recreational facilities, the road analysis component of the elk model will assume that the roads are "open" but can also be run with these roads being "closed" for comparative purposes.

Lou clarified that "enhanced forage" is meant to represent areas that have increased grass/forb and shrub cover resulting from actual management efforts to improve vegetation cover.

Oak habitats do not represent a significant acreage and do represent an "enhanced" habitat due to PacifiCorp management efforts.

Monitoring during the next license period will document the success of "enhancement".

The group agreed on the following changes in EDAW's preliminary elk evaluation units that Ron presented at the meeting:

Preliminary Units	Revised Unit
Merwin	
M1, M2, and M17	M1
M3 and M4	M2
M5 and M6	M3
M7 and M8	M4
M9 and M10	M5
M11 and M12	M6
M13 and M14	M7
M15 and M16	M8
Yale	
Y1 and Y2	Y1
Y3	Y2
Y4, Y5, and Y7	Y3
Y6	Y4
Y8 and Y9	Y5
Y10 and Y11	Y6
Swift	
S1	S1
S2	S2
S3 and S4	S3
S5	Delete (non-habitat)
S6, S7, S8, S9, S10, S11,and S12	S4
Eagle Island	Eagle Island

The group visited a number of managed and unmanaged forested stands in the Merwin Wildlife Habitat Management Area. Several of the thinned stands showed good herbaceous and shrub vegetation response to the thinning and reseeding of logging skid trails. However, several areas that were thinned to approximately 70 percent crown closure by methods other than tractor logging did not respond as well. PacifiCorp speculates that in these areas, crown cover would need to be reduced to approximately 50 percent to release undergrowth.

PacifiCorp will propose those thinned stands that have responded well to include as "enhanced forage" areas; other thinned stands on PacifiCorp ownership may be considered forage (not enhanced) based on yet-to-be-determined criteria developed by the HEP Team.

EDAW will distribute, to the HEP Team prior to the April 20, 2000 HEP Team Meeting, a draft approach for using existing GIS and timber inventory information to classify areas into forage, enhanced forage, and cover categories; GIS data and field measurements taken in March 2000 will be used to assess visual screening along open roads in or adjacent to nonforested forage habitat. HEP field sampling to be conducted in the summer of 2000 will be used to validate and/or refine the classification.

Lewis River HEP Team Meeting
APRIL 20, 2000

Draft Notes

A HEP Team meeting was held on April 20, 2000 at the Cowlitz PUD Office in Longview, Washington. The meeting began at 9:00 am and concluded at 3:30 pm. The following HEP Team members were in attendance:

Monte Garrett (PacifiCorp)
Diana MacDonald (Cowlitz PUD)
Curt Leigh (WDFW)
Liana Aker (WDFW)
Ron Tressler (EDAW facilitator)

PacifiCorp's proposal to modify the variable V2 SI graph will be reviewed by WDFW species experts; Curt will report back to the group on whether the modification is acceptable.
The pileated woodpecker model variable V7 was clarified; it serves as a modifier that downweights the overall SI if large (>30" dbh) snags are not present. The draft notes were correct and do not need additional edits. WDFW would like the opportunity to review results of the data collection and analysis to further evaluate the effect of V7.
Under bullet No. 3 under the elk model, "identify" will be changed to "propose" to make it clear that HEP Team will review the information prepared by PacifiCorp.
The action items were reviewed. Staff gauges were installed in the following locations: 2 ponds in the bypass reach, Bankers Pond and Cedar Grove Pond near Saddle Dam, and Yale Pond on February 18, 2000 and have been checked periodically since then.
Diana asked if a map could be produced showing all wetlands and staff gauge locations.
EDAW will provide the Team with a tentative field schedule for all Lewis River terrestrial studies.
Curt and Diana want CD of GIS coverages in UTM meters projection (orthos, cover types, HEP boundary, segments, WDFW roads, Merwin roads, 1995 version of bypass reach).

<u>Cover Type Acreage</u>
EDAW provided updated acreage tables of total terrestrial study area, HEP study area, and elk evaluation areas
The Team asked that EDAW revise the HEP boundary so that it does not clip off portions of the reservoirs and follows the southern shore of the bypass reach riverine habitat (RUB). EDAW will send a map showing the segments of the HEP study area.
Diana indicated that the acreage of lacustrine habitat on the Swift Canal in the new acreage table differs from internal PUD documents (99 vs. 89 acres). Monte briefly reviewed the PacifiCorp project reservoir acreages and believes that the differences are very minor. The Team will check into sources of the discrepancies, significance, and remedial action necessary.
The cover type SS1 (new seedling-sapling stands < 10 yr.) needs to be added to the study plan cover type classification table (EDAW will coordinate with Harza).
It was agreed that the segmentation done by EDAW should be adjusted so that the "T-line" segment that is within the HEP study area should be added to Merwin or Yale as appropriate. The "T-line" segment will no longer appear in HEP study area acreage.

<u>Elk Model</u>
Reviewed March 15, 2000 Meeting and recommended the following edits:
Bullet No. 6--change end of sentence to "…elk model will assume that the roads are open but will also be run a second time with the roads closed for comparative purposes."

Second bullet after table of evaluation units--change "identify" to "propose", change "will" to "may" and add "based on yet-to-be-determined criteria developed by the Team" to the end of the sentence.
EDAW will propose criteria for calling out "forage" and "enhanced forage" that incorporate site-specific management information from PacifiCorp. A table of thinned stands and key characteristics will be provided to the Team.

The Team Reviewed the list of cover types and made the following preliminary classifications:

Cover Type	Elk Habitat Designation	Criteria for Other Designations?
SS1	F	Enhanced Forage if seeding occurred beyond just landing areas and/or the area has been fertilized (input from Forest Practices Study for other landowners)
SS	C	Thinned areas identified by PacifiCorp could be C/F if adequate response has occurred.
P	C	
P-T	C	C/F or C/Enh. For. if yet to be determined criteria are met
MS	C	
MS-T	C	C/F or C/Enh. For. if criteria met
M	C	
OG	C/F	
LP	C	
YUD	C/F	
UD	C	
YUM	C/F	
UM	C	
UM-T	C	C/F or C/Enh. For. if criteria met
RS	C/F	
RD	C/F	
YRM	C/F	
RM	C/F	
OW	F	
PEM	F	
PFO	C/F	
PSS	C/F	
PUB	NON-HABITAT	
SH	C/F	C only if dominated by scotchbroom
MD	F	Enh. For. if fertilized
AG	Enh. For.	
OR	Enh. For.	
REC	Non-habitat except Cresap Bay = F	
RES	Non-habitat	
ROW	F	Enh. For. if mowed.

Elk Road Analysis

EDAW provided a table summarizing visual screening along roads in or adjacent to open forage habitats. These data were collected by Global Positioning System (GPS) during the week of March 20, 2000. This table includes only those areas that were accessible and not on private property behind locked gates or "No Trespassing" signs.

EDAW will add columns to the table to show the total length of road that is within 200 ft of open forage habitat in each elk evaluation unit.
The HEP Team will decide how to proceed to characterize visual screening in areas not visited.
EDAW will prepare a map showing the entire road coverage along with all open forage cover types buffered 200 ft, as well as the GPS data already collected. Note: Ron indicated that the GPS data points and the road GIS coverage do not line up; this is likely due to differences between digitization of roads and GPS data collection.

Sampling Plan
EDAW provided the Team with a marked-up table showing proposed number of plots per cover type. EDAW will email the team the updated table.
EDAW provided an edited version of the HEP Variables Matrix that was distributed at the previous meeting. The Team agreed to delete PUB from the black-capped chickadee (this cover type was incorrectly listed for this evaluation species in the earlier version) and to add sampling of savannah sparrow in SS1 habitat. It was agreed that the Oak Woodland and orchards are too small and isolated to represent good habitat for the species.
EDAW provided a list of randomly selected polygons to be sampled in each cover type and segment of study area. EDAW indicted that the number of plots generally matches that shown in the previously mentioned table except for LUB, RUB, and PUB, which require additional thought on how to sample shoreline cover; EDAW proposed 30 per reservoir but will propose a more definitive sampling plan for this variable in the near future.
Based on concern that the sampling might be biased against larger patch size, the Team requested that EDAW provide a frequency distribution of size classes (<1, 1-5, 5-20, and >20 acres) for each cover type/segment and a revised list of polygons sorted by cover type/segment as opposed to polygon ID so that the randomly selected polygons can be evaluated by the Team.
The Team will review all of the tables and provide comments via email.
EDAW presented a table of field measurement methods to be employed for each variable. It was agreed that the tree/shrub cover within 100 m of riverine and lacustrine habitat will be estimated by calculating a weighted (based on acreage) mean of the individual tree/shrub cover estimates measured in each cover type.
The wetland measurements require additional thought. Tentatively, a combination of transects across wetlands/ponds, staff gauges, and periodic (once per 1-3 months) will be used. PacifiCorp is concerned that visiting wetlands once per month for up to a year could be very labor intensive and may not be necessary if water level trends can be ascertained by fewer visits. Wetlands will be examined in detail this summer so that further data collection in year 2000 and 2001 can be focused on what is absolutely necessary.
EDAW will distribute draft data sheets for Team review once the Team agrees on all data collection methods to be used.

Action Items
EDAW will distribute corrected tables and maps as indicated in the above sections to allow the HEP Team adequate review time.
The Team will provide written comments on the materials via email so EDAW can make all necessary revisions.
WDFW will get back to the team regarding the proposed change in the amphibian model V7 SI graph.
The May 31 TRG Meeting will be used to wrap up loose ends in the field sampling plan.

Lewis River HEP Team

FROM Ron Tressler

DATE June 16, 2000

CC

SUBJECT June 16, 2000 Conference Call Notes

A conference call was held on June 16, 2000 to discuss WDFW comments on HEP sampling and several other items pertaining to the upcoming field sampling.

Participants included:

Monte Garrett – PacifiCorp
Gene Stagner – USFWS
Liana Aker – WDFW
Curt Leigh – WDFW

Due to scheduling conflicts, WDFW and USFWS were not on the call at the same time.

The following is a summary of the call:

Pond breeding amphibian Model
V1 and V2 will be measured during July and August and should give reasonable values for these parameters.

V4 should evaluate percent of area with 4-40" water depth during the early spring. Ponds with water level gauges will have adequate data. For other wetlands, we will visually estimate this variable this summer but will revisit sites at the appropriate time in early 2001 to validate the measurements.

V6—downed wood will be included as cover for the amphibian model.

WDFW's proposed suggestions for V7 match changes that were agreed to at the November 22, 1999 meeting.

Liana indicated that the proposed change to the V2 graph proposed by Monte at the February 3 meeting is acceptable to WDFW species experts.

Pileated Woodpecker
Deciduous tree cover is part of the reproduction/cover/forage habitat value and should be measured when leaves are on the trees.

V3—stumps and logs will be recorded separately; both will be included in the HSI calculation for pileated woodpeckers.

YELLOW WARBLER

The list of hydrophytic shrubs will be based on the list used for wetland delineation in the Pacific Northwest. As agreed to at the August 4, 1999 meeting, all FAC, FACW, and OBLIGATE species will be considered hydrophytic. EDAW will distribute the reference for the plant classification to the HEP team.

Since the variables include shrub cover and height measurements, taking the measurements in July and August will be adequate for breeding season habitat quality measurements.

BLACK-CAPPED CHICKADEE

Although lodgepole pine may provide lower quality habitat, Gene has observed black-capped chickadees using lodgepole pine on the west side of the Cascades. Black-capped chickadee measurements will be made in the lodgepole pine cover type, as the areas do support scatted Douglas-fir. Any lodgepole pine snags will be "tallied" separately so that the model can be run with and without this tree species included.

SAVANNAH SPARROW

Litter depth will be estimated during the July/August sampling. Although, there might some minor differences from litter depths present during the spring breeding season, the summer measurements should be adequate for the Lewis River HEP as it is not being used for impact assessment.

Scotch broom will be included in the shrub/tree density measurement; areas with scotch broom will be noted during field sampling and as part of the botanical surveys.

Areas mowed prior to the end of the breeding season will receive an HSI of 0.0. Monte indicated that to his knowledge, there are no areas where this would occur.

MINK

WDFW wants more time to review the method of estimating tree/shrub cover within 100m of wetlands, river, and lakes.

Gene and Monte agreed that cover within 1 m of the shoreline could be sampled in plot frames placed every 10m along a 100 m transect located parallel to the shoreline at 20 sites in each reservoir/river segment. Note: this was not discussed with WDFW on the call.

SAMPLING PLAN

Curt indicated that he did not see any obvious problems with the sampling plan at this time. Gene thought we could proceed with the plan; he is going to have USFWS staff review it further.

EDAW will prepare draft field data forms and a more detailed sampling plan and distribute them to the HEP Team for review. Unless further changes are proposed in the next 2 weeks, field sampling will proceed in polygons provided at the last TRG meeting.

LEWIS RIVER HEP TEAM CONFERENCE CALL

December 11, 2000
Revised Notes

A HEP Team conference call was held on December 11, 2000. The call began at 1:30 pm and concluded at 3:30 pm. The following persons participated on the call:

Monte Garrett, PacifiCorp
Diana MacDonald, Cowlitz PUD
Liana Aker, WDFW
Curt Leigh, WDFW
Gene Stagner, USFWS
Ron Tressler, EDAW, Inc. (facilitator)
Hugh Black, Rocky Mountain Elk Foundation
Mitch Wainwright, USFS

The conference call was held to discuss HEP sampling issues and the preliminary elk model output.

Sampling Issues

The group first discussed the spreadsheet entitled "Summary of HEP sampling/statistics issues" that was distributed to the HEP Team via email on November 28, 2000. The following are the results of this discussion.

The following plots will be sampled during spring 2001.

Agriculture 7 plots (5 at Merwin and 2 at Yale)

Emergent wetland 9 plots (2 at Merwin, 2 at Swift, 2 in Swift bypass/canal, and 3 at Yale)

Forested wetland 6 plots (1 plot at Eagle Island, 1 plot at Swift, 2 plots in Swift Canal area, and 2 plots at Yale) + water level and emergent vegetation data in a total of 11 plots

Old-growth 2 plots at Yale

Pole Conifer 3 plots at Yale

Scrub-shrub wetland 5 plots (1 plot at Eagle Island, 3 plots at Yale, and 1 plot in the Swift bypass reach) + water level and emergent vegetation data in a total of 10 plots

In addition to these plots, the Team will evaluate the following for possible sampling in 2001.

Study Area Segment	Cover Type	Number of plots
Eagle Island	PFO	1 plot
	RD	1 plot
	SH	1 plot
Merwin	UD	1 plot
Swift	M	1 plot
	MD	1 plot

Study Area Segment	Cover Type	Number of plots
	UD	1 or 2 plots
	UM	1 plot
	YRM	1 plot
Swift Canal	MS	1 plot
Yale	LP	1 plot
	M	1 plot
	RD	1 plot
	RS	1 plot
	SS	1 plot
	YUD	1 plot

EDAW will provide additional information to help the HEP Team in prioritizing additional sampling plots. This information will include: number of polygons of each type available for sampling and any polygon size or access limitations that could affect the ability to sample polygons.

The Team agreed that for the rest of the cover types, the data collected during 2000 is adequate in each of the study area segments and that no additional sampling is necessary.

Elk Model

The Team was asked to provide comment on the preliminary "strawman" elk model output provided to them at the November 14, 2000 TRG/HEP meeting.

Curt indicated that the WDFW elk biologist who developed the model, Lou Bender, reviewed the results and generally thought that the model is being applied correctly but was somewhat surprised at the low values in some units. The high road density and lack of forage (reflecting the predominance of unthinned pole and mid-successional stands in the study area) are the limiting factors.

The Team decided that no change will be made to the designation of Mature conifer as cover only.

The Team decided that EDAW should provide the Team with another version of the elk model results that modifies the criteria used for appropriating acreage among Cover, Forage, and Enhanced Forage. The following changes will be instituted:

Mid-successional-thinned (MS-T)—Cover/Enhanced forage if deciduous shrub cover > 42% (MS avg. cover) **AND** desirable herbaceous plant species present, Cover/Forage if deciduous shrub cover >20%, else Cover only.

Pole-thinned (P-T)—Cover/Enhanced forage if deciduous shrub cover > 20% **AND** desirable herbaceous plant species present, Cover/Forage if deciduous shrub cover >20% without desirable herbaceous species, else Cover only.

Oxalis should be added to the list of desirable herbaceous species.

EDAW will modify the table "Characteristics of plots in selected cover types for elk model" that is used to assign acreage for the elk model to include columns for the dominant shrub species in each plot and whether there was any elk sign observed during field sampling.

Action Items

EDAW will distribute the new elk model output and the information requested for prioritizing additional sampling.

Once the Team has reviewed the information, another conference call will be held to discuss the next steps.

LEWIS RIVER RELICENSING COLLABORATIVE PROCESS
TERRESTRIAL RESOURCE GROUP/HEP TEAM

November 14, 2000

Cowlitz PUD
Longview, WA
9 a.m. – 3 p.m.

Draft Meeting Summary
Version 1 – November 15, 2000

Attendees: (10)

Liana Aker, WDFW
Hugh Black, Rocky Mntn. Elk Foundation
Monte Garrett, PacifiCorp
Curt Leigh, WDFW
Diana MacDonald, Cowlitz PUD
Lisa McLaughlin, Note taker
Colleen McShane, EDAW
Gene Stagner, USFWS
Ron Tressler, EDAW
Mitch Wainwright, USFS

Calendar:

Nov 17	Flood Management Group	Woodland, WA
Dec 7	Aquatic Resource Group	Longview, WA
Dec 11	Terrestrial Resource Group conference call	Various
Dec 13	Steering Committee	Longview, WA
Jan 10, 2001	Land Management Framework	Longview, WA
Jan 18, 2001	Cultural Resource Group	Seattle, WA
March 15	Cultural Resource Group	Merwin, WA
May 17	Cultural Resource Group	Olympia, WA
July 19	Cultural Resource Group	Toppenish, WA
Sept 20, 2001	Cultural Resource Group	Seattle, WA
Nov 15, 2001	Cultural Resource Group	Merwin, WA

Assignments from Nov. 14 Meeting:	**Status**
M. Garrett: Write up the process of how PacifiCorp chose the rock pit site and the extent of the area to be affected for the next meeting.	
C. McShane: Contact J. Nichol to be sure the Reservoir Fluctuation study plan has been distributed to the TRG.	
D. MacDonald: Add approval of the Reservoir Fluctuation study plan to the Dec. 13th Steering Committee agenda.	
R. Tressler: Create a data legend with field names and their values for the cover type mapping on the FTP website.	
R. Tressler: Research and create a table to show CI variables with a +- .5 spread and explanations for the gap.	
R. Tressler: Send variable statistic output to C. Leigh.	
C. McShane/M. Wainwright: Review literature for distances of how far	

Assignments from Nov. 14 Meeting:	Status
mink roam, etc.	
R. Tressler: Identify and summarize cover type acreages that were not sampled due to size, access, etc.	
R. Tressler: Check the FTP site to see if mapping areas for elk are still on the site.	
R. Tressler: Add road sites, elk units to the FTP site.	
EDAW: Develop a "strawman" of target years and put the Merwin layer on the GIS.	
M. Wainwright: Get update/status of salamander study from C.Crissafulli.	

Summary of Actions:

Introductions. Reviewed and approved the agenda, with additions of a READ overview and discussion of target years.

The notes of May 31st were approved. The boundary of a proposed timber harvest for Merwin license compliance that fell partially within the Yale project has been moved to be entirely within the Merwin project. After discussion of the proposed rock pit, the July 18th notes were approved.

At this point, all study plans except the Reservoir Fluctuation study plan have gone to the Steering Committee and been approved. The Reservoir Fluctuation study plan will go to the Steering Committee with the next batch of study plans.

Based on HEP field studies, a number of cover type polygons have been changed and new acreage tables have been produced. The GIS coverage is posted on EDAW's FTP website, along with links to attribute data. EDAW will create a metadata files to describe coverage field names and values.

The majority of the terrestrial studies are underway. Cover type mapping is basically done. Some studies and surveys are scheduled for the spring.

EDAW provided cover type acreage tables for the entire study area and the slightly smaller HEP study area.

EDAW provided handouts on the HEP data. The first page of the spreadsheet summarizes the HEP study sampling, showing planned and actual study samples and acreages. Additional wetland and agricultural samples will be collected in spring 2001. The pages following the summary are the statistics from the evaluation species models. Calculations are average Suitability Index or Habitat Suitability Index. Formula calculation errors will be corrected and posted on the EDAW FTP site ftp://seattle:until4need@ftp.edaw.com/sites/seattle/lewisriver.

EDAW described the preliminary elk model results as a "strawman". EDAW explained that the classification of cover types into cover, forage, and enhanced forage categories was based on the April 20, 2000 HEP Team meeting and by splitting Right-of-way, seedling/sapling, new seedling/sapling, pole-thinned, mid-successional-thinned, and upland mixed forest-thinned based on the presence of desirable herbaceous plant species and total deciduous shrub cover from HEP plots. The area was considered enhanced if it had desirable herbaceous species **or** shrub cover greater than the corresponding unthinned stands.

It was suggested to set up two target year scenarios for the HEP study area; one assuming no management on PacifiCorp lands, and the second scenario with the present Merwin management added. Goals for

future land management would be based only on lands owned by the utilities. Year 2005 would be Target Year (TY) 0 using year 2000 data, 2006 would be TY 1, TY50 is 2055. Intermediate target years would be at TY10, 15, 30 and 45, with monitoring being done at TY15 and 45.

The resource groups come up with sets of alternatives, which will be in the READ document. All groups and the Steering Committee will come together to discuss and evaluate alternatives, actions and resource interactions. The READ document will be a series of matrices, not definitions of each alternative, to help get to settlement talks.

AGENDA ITEM 1: INTRODUCTIONS (PRE-MEETING HANDOUT #1)

The agenda was reviewed and approved, with the addition of a READ overview and discussion of target years.

Agenda Item 2: Note approval

The notes of May 31st and July 18th were approved. There was question regarding the outcome of the discussion that took place on July 18th about the planned timber harvest that fell partially in Yale. They are now included in the Merwin lands and under the Merwin management plan.

An update on the rock pit site was also discussed. PacifiCorp said the action is not inconsistent with management of project and it is pursuant to requirements of the DNR. WDFW would like to get the rest of the group's opinion on whether they think a long term change in land use from wildlife to rock pit is consistent with the watershed view of management? They are not saying it's an inappropriate use, but it has to do with commitment of resources that will carry into the period this group is concerned with. PacifiCorp welcomes input and comments, but until there is settlement on the overall program, the Merwin program will go forward as scheduled. Planned is the development of a 1 to 3 acre rock pit. It is an outcrop and little other use. USFWS pointed out that outcrops have other uses than rock pit, and they never saw a rock pit that stays at 1 acre; it grows and grows. They can foresee that the thing will become a source pit for the entire watershed owned by PacifiCorp. Maybe there is a better place to put the rock pit. There should have been a well thought out plan. PacifiCorp said there was a well thought out process for acquiring needed material. Other areas were sought. This was a well located site, with minimal environmental impact, and not inconsistent with the Merwin program. There are not any plans to make it larger, decimate landscape, etc. USFWS understands that, but looking at past history, would appreciate limiting the size of this rock pit. PacifiCorp will bring a write-up of the process to choose this site, including the planned extent of the area, to the next meeting. The July 18th notes were approved after this discussion.

Agenda Item 3: Update status of study plan approval

At this point, all study plans except the Reservoir Fluctuation study plan have gone to the Steering Committee and been approved. Another draft of the reservoir fluctuation study plan went out, with comments due by the end of August. C. McShane and M. Garrett clarified some points for the group and made a few more minor adjustments. It will go to the Steering Committee with the next batch of study plans. The next Steering Committee meeting is December 13th.

Agenda Item 4: Review/discuss draft cover type maps **(Handout #1)**

Based on HEP field studies, a number of polygons have been changed and new acreage summaries have been produced. The GIS coverage is posted on EDAW's FTP website, along with links to attribute data. EDAW will create a data legend with field names and their values.

Examples of changes to the cover type maps included changing pole to mid-successional and vice versa due to presence of or smaller trees than what was evident on aerial photos or due to changes that have occurred since 1996 when the Yale portion of the study area was mapped. Other examples include changes between palustrine scrub-shrub and riparian shrub. Something similar to Handout #1 will appear in the technical report. Comments can be sent to R. Tressler.

Agenda Item 5: Update status/schedule of all studies except HEP

Cover type mapping is basically done.

Botanical resource study covers threatened, endangered, culturally sensitive plants and noxious weeds. Culturally sensitive species and TES have been surveyed at Merwin.

Cottonwoods will be surveyed in the fall for the whole project.

Noxious weed survey and amphibian surveys were done last spring. Egg mass surveys for most of wetlands in the project area have also been done.

There are two survey and manage species surveys remaining for spring 2001at Drift Creek.

Yale and Merwin tributary stream studies are almost done, including culverts as barriers to riparian species, fish, etc. The Devil's Backbone area has also been surveyed. Swift will be done as soon as possible. K. Dubé has done an erosion survey and the cutbanks around the Swift Reservoir have been mapped.

K. Dubé and C. McShane walked Speelyai Creek from the diversion to Merwin and looked at riparian habitat and geomorphology as part of the riparian synthesis study. They took measurements of riparian vegetation, downed wood, etc.

Photo points and measurements of vegetation in the bypass reach were done for the IFIM.

Agenda Item 6: Review status of HEP field sampling program, and

AGENDA ITEM 7: REVIEW OF PRELIMINARY STATISTICAL ANALYSIS OF HEP FIELD DATA *(COMBINED IN THE NOTES BECAUSE THE DISCUSSION COVERED BOTH AGENDA ITEMS)* HANDOUTS #2 AND #3

Spreadsheets sent via email showing number of plots sampled and descriptive statistics for HSI and SI values for about half of the evaluation species have since been updated. (See Handout #2). The handout replaces previous versions. Any future corrections will be posted on the EDAW FTP site.

The first page of the spreadsheet summarizes the HEP study sampling, showing planned and actual sample plots and cover type acreage. Additional wetland and agricultural cover types will be sampled in the spring as the conditions were not appropriate during he August-September sampling period. A few formula errors were identified in the tabulation of totals. The errors will be corrected in files posted on the FTP site. WDFW also noticed that for Young Riparian Mixed YRM, one transect was planned, with zero actually sampled, yet under the YRM summary statistics, one is shown. EDAW said that it is an oversight and that one YRM plot was sampled.

Question: Why were there more shoreline transects at Yale than at Swift and Merwin? Also, looking at other cover types, Yale is under represented in many cases. Answer: It wasn't intentional. There are

several factors that contributed. For the shoreline plots, the numbers probably represent the relative amount of time that was spent sampling by boat and ease of access relative to the other areas. One of the primary reasons that numbers of plots is lower in some of the riparian and upland cover types is that Yale has a large amount of private land that was problematic to access. EDAW will summarize why the number of plots were sampled in each segment.

The pages following the summary are the descriptive statistics from the HSI models. Calculations are means and 80% confidence intervals for Suitability Indices (SI) or Habitat Suitability Indices (HSI). A collection of bar charts (Handout #3) show the mean and standard error bars for each SI and HSI as well as raw variable data for each cover type/segment combination. EDAW explained that the pileated woodpecker variables for 10-inch, 30-inch, and cedar snags were not summarized in the tables as the SI values are either 0.9 or 1.0. A few errors were found by the HEP Team--Mink/tree/shrub cover mean should be 0.664 in SS. HSI yellow warbler should be 0.793.

In several places on the summary, the upper limit of the confidence interval (CI) goes above 1.0. EDAW explained that it is an "artifact" of the statistical summary and that, in reality, the values cannot go above 1.0. Question: CIs 0.92--1.13 aren't too bad, but ones such as 0.34 to 1.15 seem to be quite wide. Is there any discussion on those with really large CI to collect samples to try and reduce the variability? Answer: It is up to the HEP Team. EDAW indicated that a number of the large CIs are due to the variability of (1) trees >51 cm diameter, (2) large snags. The HEP Team requested information on the HSIs and SIs with particularly large CIs for variables in each segment of the study area. EDAW asked for guidance on what CI should be considered too wide. The HEP Team said to focus on those wider than 0.5.

The shoreline cover page (last page, Handout #2) replaces the earlier email version. A one-meter band was calculated into the formula. River sections have less variability than reservoir shorelines. EDAW explained that the sample size indicated in the tables is the number of individual plots measures along sets of shoreline transects.

Question: The maximum shoreline cover value for Merwin is 80%? Answer: That is the maximum cover value measured in any of the plots.

PacifiCorp said shoreline cover surveys are very subjective and that shorelines around the reservoirs don't represent much cover. That's what the numbers are saying. EDAW explained this particular SI is a straight-line function between 0.0 at a 0 percent cover to 1.0 with 100 percent cover. WDFW doesn't agree that it's so subjective and stated that the survey is looking at downed wood, overhanging vegetation, etc. EDAW said other variables go into this model; the number of months the water is low, etc. All in all, the reservoir is going to come out low for mink habitat.

We are establishing a baseline to help guide the efforts of future plans. If, during future monitoring, PacifiCorp goes out and resample and finds a 10% increase in cover, mink would get some benefit. Not sure what the discernable difference would be. EDAW explained that the final mink HSI for lacustrine and riverine habitat is the lower of two components: (1) a combination of shoreline cover and trees/shrub cover within 100 meters, and (2) surface water permanence throughout the year.

EDAW asked how the Team wants to define water permanence. Criteria, such as a certain distance from full pool, how many months at full pool, etc. need to be discussed for surface water permanence. This group will need to make that decision at some point. Data on maximum size of openings mink would cross with no cover, etc. WDFW feels certainly no lower than the one-meter already established. EDAW and the USFS will review literature for distances of how far mink roam, etc. to provide to HEP Team.

Agenda Item 8: Review draft elk modeling results (Handout #4)

EDAW provided handouts (#4) that presents a preliminary elk model analysis. Page 1 provides general instruction on how the package is arranged. Page 2 is a table of cover type acreage in each elk evaluation unit (elk evaluation unit coverage is on EDAW FTP site). This table also presents the base cover/forage/enhanced forage elk habitat designations for each cover type based on the April 20, 2000 HEP Team meeting. A number of cover types can be assigned differently based on criteria that EDAW proposed. Page 3 provides herbaceous plant species and deciduous shrub cover in the MS-T, P-T, ROW, SH, SS, and SS1 plots sampled in 2000. EDAW allocated cover type acreage to the elk habitats based on the following:

MS-T—Enhanced forage/cover if desired grasses present or deciduous shrub cover > 42.44% (mean in MS cover type), forage/cover if no desired grasses but shrub cover >10%, else cover only.

P-T— Enhanced forage/cover if desired grasses present or deciduous shrub cover > 16% (mean in P cover type), forage/cover if no desired grasses but shrub cover >10%, else cover only.

ROW— Enhanced forage if desired grasses present, else forage only.

SH—forage/cover if no scotchbroom present, cover only if scotchbroom present.

SS—forage/cover if desirable forage species present, else cover only.

SS1—Enhanced forage if desired grasses present, else forage only.

USFS asked if the EDAW's strawman approach assumes that all deciduous shrubs are good for forage. EDAW said yes. USFS said that there are some species that either are not preferred or are too tall to be accessible to animals. Team might want to consider some deciduous species as poor forage. EDAW does have dominant plant species in each layer, but did not record shrub cover by species. This would make it difficult to refine the analysis too much beyond presence/absence. Blackberries were not counted as a deciduous shrub but were included in the combined tree/shrub cover for mink.

Page 4 of the handout summarizes road density and screening along open forage habitats in each evaluation unit as well as the percent of each evaluation unit composed of cover, forage, and enhanced forage. The values in this table are those that are fed into the actual elk model.

EDAW described the model output that are on pages numbered 4-23. USFS likes the model output display as it is easy to follow and see where limiting factors are. For example, at the Merwin units, higher road density is driving the final habitat capability down. Cover is not a problem in any unit (1 unit does have slightly less than optimal cover). Forage area is often low and seems to be driving inherent habitat capability/forage capability down in virtually every unit.

Some of the model areas were pointed out on a map to help visualize the areas. S4 on the model is Drift Creek.

Roads associated with Recreational areas were considered open roads. The acreage of recreational facilities was considered as non-habitat, thus pulling down the percentage of both forage and cover in the evaluation unit. The model has way of including other "disturbance" issues.

Question: Does it make sense to look at deciduous shrub cover for each cover type and to call some of them cover/forage instead of just cover? Answer: A lot of sample areas have a lot decent forage area. EDAW can create a table for individual plots showing shrub cover, dominant species and can add another

column for shrub species. It might increase the percentage of forage habitat a little bit. WDFW pointed out that salal is not a preferred plant species for elk but that 1986-'87 fecal tests at Merwin showed a high percentage of salal in elk diet. That tells that there's not enough food out there if elk are resorting to salal. PacifiCorp feels there have been a lot of forage enhancements since then.

Mature stands are shown as cover only and not forage. Lou Bender, the elk model expert, felt that mature stands are not forage. Maybe some mature stands do have some shrubs and could present a more realistic picture. WDFW has winter counts, pre-season counts, and post winter counts of elk. That would help show where elk are actually located. WDFW is reluctant to use mature forest/forage value. We could come up with some sort of classifier; mature with certain shrubs, species, etc. to provide some forage.

The Team decided that for now, additional data summary is needed until members of the group have chance to review what was presented. A conference call was scheduled for December 11, 2000 to discuss this issue along with the statistics presented.

NEW AGENDA ITEM 9: TARGET YEARS

Target years (TY) for the HEP analysis must have a TY0, TY1, and TY50 (assuming a 50-year license). Decisions need to be made when to sequence, during the license period, and what target years to use as a monitoring tool. Model two scenarios: (1) assume no PacifiCorp management, just succession and (2) with current PacifiCorp management continuing on PacifiCorp-owned land. Then additional HEP accounting can be done for the management plan that is developed based on desired habitat goals.

The HEP team agreed on the following TYs:

TY0-2005-baseline using data collected in 2000-2001.

TY1-2006-start of new license

TY10-2015-Merwin Management effects modeled.

TY15-2020-succession/management modeled AND resampling in field

TY30-2035-succession/management modeled

TY45-2050-succession/management modeled AND resampling in field

TY50-2055-end of license.

Although the HEP analysis will include the entire study area, WDFW and USFWS agreed that management actions can really only be affected on PacifiCorp and Cowlitz lands. Management patterns on other lands need to be built in as assumed actions. USFWS agreed, saying it would be a limiting factor analysis in a way, such that habitat parameters PacifiCorp has control over can be managed a certain way. We can show what PacifiCorp can do to meet some of the objectives that are obviously not going to be met other ways in the drainage. PacifiCorp said what USFWS is saying makes perfect sense, but from a business and corporate mentality, the company will resist the idea to set up a management scheme to compensate for third party management. Actions of others we have no control over, the company won't want it to cost extra because of those actions. M. Garrett just pointed this out to make everyone aware.

The WDFW wants projected development factored into the analysis. Natural disasters are not included. WDFW does have some data on housing predictions in the ILM. PacifiCorp said those kinds of things are more important when developing goals, not necessarily when running these analyses. EDAW feels

they won't add anything to the management plan, but WDFW will add to the HEP study area and acreage can be converted. EDAW will develop a "strawman" for the successional patterns for each TY.

NEW AGENDA ITEM 10: READ OVERVIEW

Diana presented information on the READ. The resource groups come up with sets of alternatives, which will be in the READ document. All groups and the Steering Committee will come together in collaboratively so all can hear each other's alternatives, actions and resource interactions. The READ document will be a series of matrices, not definitions of each alternative, to help get to settlement talks. The tentative schedule is:

May 2001 – resource groups review technical studies

June – identify "train wrecks and deal killers"

July-Sept – workshops

Oct – review outcomes of workshops, groupings alternatives

Nov-Dec – Steering Committee look at recommendations, etc.

Jan 2002 – begin settlement talks

NEXT MEETING: DECEMBER 11

A conference call, set up by PacifiCorp, is scheduled for December 11th, at 1:30 p.m. We will discuss descriptive statistics, the elk model, etc. and schedule the next meeting.

Handouts

(All Handouts become part of the public review file)

Acreage of cover types in the Lewis River HEP study area
Lewis River HEP Study Sampling status as of September 2000
Bar charts
Draft elk model review
Lewis River elk management unit map
Preliminary field schedule for TRG 2001 studies

Pre-meeting Handout #1: Agenda

LEWIS RIVER HEP TEAM MEETING

November 16, 2001
DRAFT NOTES

A HEP Team meeting was held on November 16, 2001 at the U.S. Fish and Wildlife Service office in Lacey, Washington. The meeting began at 9:00 am and concluded at 3:00 pm. The following HEP Team members were in attendance:

Monte Garrett, PacifiCorp
Mitch Wainwright, USFS
Hugh Black, Rocky Mountain Elk Foundation
Curt Leigh, WDFW
Gene Stagner, USFWS
Ron Tressler, EDAW, Inc. (facilitator)
Colleen McShane, EDAW, Inc. (facilitator)

The following topics were discussed: (1) review of new HSI data sumary tables, elk model runs, and HEP accounting structure; (2) target year designation; (3) base case analysis alternative and management alternatives to be analyzed in the HEP study; and (4) assumptions for predicting changes in habitat acreage and HSI values under various alternatives. The following is a summary of these topics.

Review of new HSI data sumary tables, elk model runs, and HEP accounting structure

The Team reviewed the HSI and SI tables distributed via email prior to the meeting and discussed several entries that appear to be in error (e.g., the pileated woodpecker HSI).
The Team asked that the weighted average and total HSI values not be presented because the analysis will be done by project.
EDAW will conduct additional QC and redistribute corrected tables (corrected table showing mean values and confidence intervals is attached as Attachment A).
Because some polygons could not be sampled in the field there were several cover types that were not sampled in all segments of the study area. The Team decided to fill the data gaps as follows:

Swift – Lodgepole pine = average of Yale and Swift Canal lodgepole pine plots

Eagle Island – Meadow = Merwin Meadow plots
Eagle Island – Mid-successional conifer = Merwin chickadee value, otherwise average of Merwin, Yale, and Swift MS plots
Eagle Island – Emergent Wetland = average of Merwin, Swift, and Yale PEM plots
Swift Mink riverine buffer HSI = 0.45 from below Merwin Dam
Yale Mink Riverine buffer HSI = 0.59 from Swift Bypass reach
Eagle Island – Upland Mixed = Merwin UM plots
Swift – Young Riparian Mixed = Swift Young upland Deciduous plots

Gene asked if we could link the HSI values to the GIS vegetation map so the values could be displayed geographically. EDAW will investigate this further and report back at the next meeting.
EDAW reviewed the elk model run. No comments were received during the meeting.
EDAW reviewed the preliminary HEP accounting structure. No comments were received during the meeting but after the meeting, Monte asked that the tables be stratified first by project, then by species.

Target Year Designation

The Team decided that the target years would represent the following:

Target Year	Actual Year	**Comment**
TY0	2003	Need to account for planned timber harvest between 2001 and 2003
TY1	2004	Implementation of management plans.
TY10	2014	Move acreage and adjust HSI values.
TY15	2019	Move acreage and adjust HSI values. Re-measure HSIs to monitor progress.
TY30	2034	Move acreage and adjust HSI values.
TY45	2049	End of license period. Move acreage and adjust HSI values. Re-measure HSIs to monitor progress.

Base Case Analysis Alternative and Management Alternatives

The wildlife management plan (Plan) will include separate "chapters" for each project. Therefore, the segment boundaries need to be revised to extend FERC project boundaries out to the HEP project boundary. EDAW will revise cover type GIS coverage and acreage to reflect the segment changes.

Within each project, separate analyses will be conducted with regard to lands owned/controlled by the licensees and other lands within the HEP boundary. Results of analyses of lands not owned/controlled by the licensees will provide context for Plan effectiveness and trends in land use.

EDAW handed out a preliminary list of alternatives to analyze that included the following: (1) base case, (2) management alternative with harvest activities, and (3) management alternative without harvest activities. The Team proposed a number of changes to the wording of these alternatives. The changes are indicated in redline/strikeout on the attachment B.

It was agreed that a "No Management" alternative be analyzed. This alternative will include land acquisition but no active management of any kind.

Impacts of recreation will be assessed by evaluating habitat loss under one of the alternatives. It is assumed that recreation will be the same regardless of the terrestrial resources alternative.

There was discussion of how to develop alternatives. Hugh presented the concept of having different alternatives emphasize different evaluation species. He indicated that this approach would let the Team evaluate the overall effectiveness of other alternatives that may attempt to "balance" enhancements. Other members of the Team thought we should go straight to development of a blended alternative that emphasizes different species in different areas of the study area (e.g., elk in important winter range areas, woodpeckers in older conifer forests, warblers in riparian and wetland areas, and savannah sparrows in existing agriculture and meadows). No decision was reached.

Assumptions for changing habitat acreage and HSI values

The team developed assumptions for the following cover types: old-growth, mature, mid-successional conifer, pole conifer, seedling-sapling, and new clearcut. The assumptions were broken out by type of ownership: PPL/Cowlitz PUD (non-Merwin), USFS, private, and DNR. For PacifiCorp lands included in the Merwin Wildlife Management Plan, the timber harvests already planned will be assumed to continue under the base case alternative. EDAW will continue to develop the preliminary assumptions and distribute to the Team.

Schedule/Action Items

The next HEP Team Meeting will be either January 7, 8, or 9, 2002, at the PUD office in Longview.
Gene will forward information from the Cowlitz Falls HEP that might be useful in making assumptions.
EDAW will revise the HSI calculations (completed and attached), the HEP accounting spreadsheet to stratify first by project, and revise the segment GIS coverage to re-allocate acreages to appropriate project.
EDAW will complete the assumptions matrix for all cover types and will work with PacifiCorp to integrate Merwin WMP components for the base case alternative.
EDAW will prepare preliminary assumptions for the No-Management Alternative.