Summary of CMER Project Status and Revisions to the FY15 CMER Workplan

Prepared for Forest and Fish Policy Committee Meeting March 6, 2014

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Overview of project status

New Projects:

- **One new project was added to the 2015 CMER workplan.**
  - Forested Wetlands Effectiveness Project
- **Work began on three projects using the pilot TWIG process:**
  - Eastside Type N Riparian Effectiveness (working on study designs)
  - Westside Type F Effectiveness (clarifying with policy the purpose and critical questions)
  - Road Prescription Effectiveness (TWIG formed but progress uncertain)
- **It is feasible that CMER will begin at three more studies during FY15/16.**
  - Unstable slopes criteria project
  - Extensive Riparian Status and Trends Monitoring – Eastside Type Np
  - Van Dyke's Salamander (FY16)
  - Forested Wetlands Effectiveness Monitoring

Completed Projects:

- **No CMER projects were completed since the workplan was last revised.**
- **Expect six projects to be completed in FY14 or FY15:**
  - Eastside Type F BTO Temperature
  - Eastside Type N Forest Hydrology Study
  - Amphibian Buffer Integrity - Shade Effectiveness
  - Tailed Frog Literature Review
  - Extensive Riparian Status and Trends Monitoring – Westside Type Np and F
  - RMZ resample (birds)
- **Expect three more to be completed in FY16:**
  - Type N Effectiveness Study in Hard Rock Lithology
  - Riparian Hardwood Conversion (note 10-yr resample planned for 2016)
  - Eastside Washington Riparian Assessment Project (EWRAP)

Policy Mediated Changes:

- **Policy recommendations from Type N Strategy were added to projects throughout the workplan as changes to the critical questions.**

Changes to Workplan Summarized by Rule Group

- **Stream Typing (p. 20)**
    - No changes to workplan.
    - No ongoing projects.
- **Type N Riparian Prescriptions (p. 25)**
    - Changes to workplan reflect clarification of project descriptions and status, and changes made to performance targets and critical questions that reflect Policy recommendations from the Type N strategy.
    - No new projects.
    - Expect completion of Eastside Type N Forest Hydrology Study, Amphibian Buffer Integrity - Shade Effectiveness, and Tailed Frog Literature Review projects in FY14-15
    - Expect completion of Type N Effectiveness Study in Hard Rock Lithology in FY16
    - Type N Effectiveness Study in Soft Rock Lithology ready for harvest treatments.
    - Work has begun on Eastside Type N Riparian Effectiveness (working on study designs).
    - Final report for Extensive Riparian Status and Trends Temperature Np Westside expected in late FY15.
    - Work may begun on site selection for Extensive Riparian Status and Trends Temperature Np Eastside project in FY2016.
    - Tailed Frog meta-analysis project is in the analysis phase, with no estimated completion date.
    - Van Dyke's Salamander Project being scoped for initiation after 2015.
- **Type F Riparian Prescriptions (p. 76)**
    - Changes to workplan reflect clarification of project descriptions and status, and changes made to performance targets and critical questions that reflect Policy recommendations from the Type N strategy.
    - No new projects.
    - Expect completion of Eastside Type F BTO Temperature Study in FY 2014: and the Extensive Riparian Status and Trends Temperature F Westside, and the Riparian Hardwood Conversion Project in late FY15
    - Work has begun on the Westside Type F Effectiveness Study.
    - Final BTO add on site to be sampled in spring 2014, then analysis and report writing will begin.
- **Channel Migration Zone (p. 125)**

    - No changes to workplan.
    - No ongoing projects.
- **Unstable Slopes (p. 129)**
    - No significant changes to workplan.
    - No ongoing projects.
- **Roads (p. 144)**
    - No changes to workplan.
    - Initiated TWIG for Road Prescription Effectiveness Study – no progress known.
- **Fish Passage (p. 156)**
    - No changes to workplan.
    - No ongoing projects.
- **Pesticides (p. 161)**
    - No changes to workplan other than including Type N waters in critical question.
    - No ongoing projects.
- **Wetlands Protection (p. 164)**
    - Changes to workplan reflect clarification of project descriptions and status.
    - Added the Forested Wetlands Effectiveness Project to workplan.
    - Expect completion of Forest Practices and Wetlands Systematic Literature Review in FY15, and completion of Wetlands Program Research Strategy in FY15 or FY16.
- **Wildlife (p. 189)**
    - Changes to workplan reflect clarification of status for the RMZ Resample project.
    - No new projects.
    - RMZ Resample Project is going to ISPR in spring 2014.
- **Intensive Watershed-Scale Monitoring to Assess Cumulative Effects (p. 195)**
    - No changes to workplan.
    - No ongoing projects.

Description of CMER Projects slated as needing funding between FY14-FY18

Contents

Status of On-Going CMER Projects and those on Settlement Master Schedule to start prior to FY18

Type N Rule Group

Type N Riparian Effectiveness Program

Type N Experimental Buffer Treatment Project in Hard Rock Lithologies

Description:
This study is a field experiment that assesses the effects of three riparian buffer strategies (compared to unharvested reference basins) on amphibians, water quality, and exports of nutrients, detritus, macroinvertebrates and suspended sediment, and downstream fish populations. The BACI (before-after/ control-impact) study design includes randomized blocks, with sites assigned to one of four treatments. reference. Pre- and post-harvest data on variables such as amphibian populations, riparian stand characteristics, tree mortality and LWD recruitment, shade and stream temperature, litterfall, light, stream flow, water chemistry, particulate and invertebrate export, primary productivity, and stream-bank erosion have been collected. Data on downstream effects on water quality and fish populations have been collected, where possible, and will also be assessed. Study sites are limited to basins with basalt or other hard rock lithologies where the target amphibian species are more likely to be found.

Status:
The study plan for this project has gone through ISPR and has been approved by CMER. Site selection site setup, and hree years of pre-harvest sampling have been completed, including one year of sampling in 2008 which was added due to a large windthrow event that impacted several sites. Harvest treatments began in April 2008 and most were completed by September 2009. However, due to the economic recession beginning in 2008, harvest in two sites were not applied. As a result the 100% treatment site in the South Cascade Block was eliminated from the study, and the FP treatment site in Willapa 2 Block was maintained as a second reference within that block. Two years of post-harvest sampling occurred in 2009 and 2010, except for the 0% treatment site in the Olympic Block where harvest treatment wasn't completed until late August 2009. Therefore, summer 2010 and 2011 are the first and second years, respectively, of post-harvest sampling for stream temperature in this site. Water quality data through October 2011 have gone through QA/QC and are stored in databases. Based on preliminary analyses of the data collected through August 2011, stream temperature, riparian cover, stream flow, and turbidity will continue to be measured through 2014.

Drafts of Chapters 1 through 6, 8, and 9 have been submitted to CMER for review. Chapter 13 is currently under PI review. All chapters, except Chapter 17-Conclusions, are expected to be submitted by June 2014 to CMER for review.

Additional post-harvest sampling was completed in spring and summer 2013, five years after harvest treatments were implemented. During this time riparian stand characteristics were evaluated in all vegetation plots, and stream metrics and woody debris were sampled in all stream plots. These data will be shared in an addendum to the original report that is currently under development. A later period of post-harvest sampling, including the above-mentioned response variables as well as water quality and amphibian demographics and genetics, is recommended between FY 2015 and 2019, with exact timing dependent on harvest plans for reference sites. Amphibian genetics sampling during this proposed period is necessary for post-harvest amphibian genetics sampling, the timing of which requires generational turnover of the focal amphibian species. The intent for including the remaining variables would be to complete another period of sampling across the entire group of original response variables prior to the loss of reference sites to harvest. Data from this latter sampling period would also be shared in an addendum to the original report.

Type N Riparian Effectiveness Program

Type N Experimental Buffer Treatment Project in Soft Rock Lithologies

Description:
This study is a field experiment analogous to the Hard Rock Project but implemented on more erodible (soft rock, largely marine sedimentary) lithologies. This project differs from the Hard Rock Project in that it:

- employs a Multiple Before-After/Control-Impact (but multiple control sites),
- tests only the forest practices rule buffer treatment; no alternative buffers are tested,
- does not include any amphibian, fish, litterfall, or drift measurements,
- includes benthic macroinvertebrate sampling rather than macroinvertebrate drift..

Status:
A grant from the Environmental Protection Agency (EPA) was awarded to the Department of Ecology in October 2010 that will partially fund the design and implementation of the soft rock lithologies project. The Quality Assurance Project Plan is complete and was published in September 2011 (http://www.ecy.wa.gov/biblio/1103109.html).

Site selection was completed in August 2012 and temperature monitors installed. Woody debris, channel dimensions, stream cover, and substrate size class

measurements have been completed. Montana flumes were installed in four basins by Oct 9, 2012 to measure stream flow. Stage height and turbidity measurements began in January 2013.

Stream temperature data were downloaded as scheduled in spring and fall 2013. Channel measurements and riparian vegetation data were completed in summer 2013. Harvest is scheduled to begin in 2014.

Type N Riparian Effectiveness Program

Eastside Type N Forest Hydrology Project (FHS)

Description:
The Eastside Type N Forest Hydrology Project was designed to determine the spatial characteristics of late summer surface-water discharge across eastern Washington FP HCP lands whether there were a set of readily identified external characteristics that could be used to group and/or remotely identify stream reaches that exhibit similar hydrologic characteristics.

*Status:*The Eastside Type N Forest Hydrology Project study design was approved by CMER in December 2009. Field work was completed in 2012. Data analysis and report writing is expected to be completed in early 2014.

Type N Riparian Effectiveness Program

Eastside Type N Riparian Effectiveness Project

Description:
The study will determine if, and to what extent, the prescriptions found in the Type N Riparian Prescriptions Rule Group are effective in achieving performance targets and water quality standards, particularly as they apply to sediment and stream temperature in eastern Washington. A TWIG (Technical Writing and Implementation Group) was formed to identify critical questions, review the best available science, and recommend an approach to the study design.

The objectives of the ENREP study are to: 1) quantify the magnitude of change in stream flow, canopy closure, water temperature, suspended sediment transport and wood loading within eastern Washington riparian management zones (RMZ) following harvesting within current rule constraints, and 2) evaluate the effects of these changes on downstream waters where possible.

Status:
The Forest Policy Committee recently approved the following Technical Writing and Implementation Group's recommendations:

1. Develop a BACI study design on Eastern Washington spatially continuous Type Np streams. TWIG should consider in the development of the study design:
    - Alternative harvest strategies within current rule constraints
    - Effects on downstream Type F waters, including downstream temperature response
    - Longer time period
2. Collect further information on Eastern Washington Type Np basins with spatially discontinuous surface flow that will assist the TWIG in developing a study design that could test the effect of buffering or not buffering spatially intermittent stream reaches on Type Np streams. Policy requests the TWIG to report back after the collection of further information prior to developing study design (briefing, not decision item).

Type N Amphibian Response Program

Type N Experimental Buffer Treatment Project in Hard Rock Lithologies

Description:
This study is a field experiment that assesses the effects of three riparian buffer strategies (compared to unharvested reference basins) on amphibians, water quality, and exports of nutrients, detritus, macroinvertebrates and suspended sediment, and downstream fish populations. The study design includes randomized blocks that include sites assigned to one of four treatments, including references. Pre- and post-harvest data on variables such as amphibian populations, riparian stand characteristics, tree mortality and LWD recruitment, shade, stream temperature, litterfall, stream flow, water chemistry, detritus and invertebrate export, primary productivity, and stream-bank erosion have been collected. Data on downstream effects fish populations have been collected and will also be assessed where possible. Study sites are limited to basins with basalt or other hard rock lithologies where the target amphibian species are more likely to be found.

Status:
The study plan for this project has gone through ISPR and has been approved by CMER. Site selection, site setup, three years of pre-harvest sampling and two years of post-harvest sampling have been completed, including one year of sampling in 2008 which was added due to a large windthrow event that impacted several sites. Harvest treatments began in April 2008 and most were completed by September 2009. However, due to the economic recession beginning in 2008, harvest treatments in two sites were not applied: the 100% treatment site in the

South Cascade Block was eliminated from the study and the FP treatment site in Willapa 2 Block was maintained as a second reference within that block. Post-harvest sampling occurred in 2009 and 2010, except for the 0% treatment site in the Olympic Block for which harvest treatment application was not completed until late August 2009. Therefore, summer 2010 and 2011 are the first and second years, respectively, of post-harvest sampling. Based on analysis of the data collected through August 2010 showing a statistically significant increase in the daily maximum summer temperature in most harvested basins, stream temperature will be measured through April 2014.

Drafts of Chapters 1 through 6, 8 and 9 have been submitted to CMER for review. Chapter 13 is currently under PI review. All chapters, except Chapter 17 Conclusions, are expected to be submitted to CMER for review by June 2014.

Additional post-harvest sampling was completed in spring and summer 2013, five years after harvest treatments were implemented. During this time riparian stand characteristics were evaluated in all vegetation plots, and stream metrics and woody debris loading (including overall loading and counts and quantification of pieces) were sampled in all stream plots. These data will be shared in an addendum to the original report that is currently under development.

A later period of post-harvest sampling, including the above-mentioned response variables as well as water quality and amphibian demographics and genetics, is recommended between FY 2015 and 2019, with exact timing dependent on harvest plans for reference sites. Amphibian genetics sampling during this proposed period is necessary for post-harvest amphibian genetics sampling, the timing of which requires generational turnover of the focal amphibian species. The intent for including the remaining variables would be to complete another period of sampling across the entire group of original response variables prior to the loss of reference sites to harvest. Data from this latter sampling period would also be shared in an addendum to the original report.

Type N Amphibian Response Program

Tailed Frog Literature Review Project

Description:
Of the seven FP HCP SAAs, the two tailed frog species may be the most extensively studied due to their wide distribution in the coastal Pacific Northwest. There are enough published studies on this species that a synthesis of those results will be useful in helping LWAG develop a research and monitoring program. A draft literature review was completed in 2011. The recent reclassification of the tailed frog into two species required the review to be restructured in midstream to reflect that taxonomic revision.

Status:
The draft review was completed in 2011. It was submitted to LWAG for review in December 2011 and it went to CMER in March 2012. It was approved to go to ISPR in October 2012. It was returned from ISPR review in June 2013. The final report is projected for finalization in January 2014.

Type N Amphibian Response Program

Buffer Integrity – Shade Effectiveness Project

Description:
Timber harvests result in two important immediate physical changes: reduction in shade levels and increased sedimentation. Since during harvests these changes are coupled, it is typically not possible to partition their respective contributions. Understanding their individual effects is important because sediment is suspected of having largely negative effects, whereas the effects of shade reduction have the potential to be positive. The Buffer Integrity - Shade Effectiveness Project provided the opportunity to examine the effects of reducing shade on a scale that minimizes sedimentation effects. This project examined the effects of three levels of shade reduction on SAA density, body condition, and spatial distribution, as well as water temperature, primary productivity, litter fall and macroinvertebrates. This is a cooperative project between Longview Timberlands LLC and CMER. Longview Timberlands LLC completed a pilot study in 2003 and initiated a broader study in 2004. The latitudinal breadth of this study was increased with CMER approval to include WDFW-monitored sites on the Olympic Peninsula. Though the original study was intended to address all major groups of SAAs (i.e., tailed frogs, torrent salamanders, and giant salamanders), the region available for selection of the SAA-occupied sites on the eastern Olympia Peninsula lacked the giant salamander species — Cope's giant salamander — present on much of the peninsula. Hence, the Olympic portion of the study addressed only tailed frogs and torrent salamanders.

Status:
The first two years of pre-treatment sampling occurred in 2006 and 2007. Treatments were implemented during the winter of 2007–2008, and two years of post-treatment sampling were completed in 2008 and 2009. A draft report was completed in 2012, underwent CMER review, and went to ISPR in mid-2013, was revised and is pending final approval.

Type N Amphibian Response Program

Amphibians in Intermittent Streams Project

Description:

This project seeks to provide an understanding of amphibian use of the stream segments exhibiting spatially discontinuous perennial flow that often occur at or near the origins of headwater streams. This project will provide information that will directly inform the efficacy of buffering these stream segments in terms of SAA occupancy and ecology. The study plan includes three phases: (1) an assessment of data collected under previous CMER-funded projects for data applicability to the project's goals and objectives; (2) an analysis of the data, if applicable, identified in Phase 1; and (3) based on the results of Phases 1 or 2, additional data will be collected if needed.

Status:
Phase 1 identified only 10 streams from previous LWAG-sponsored western Washington work with data appropriate to the project; thus LWAG determined there were not enough data to warrant undertaking Phase 2 and that Phase 3 should be implemented. Phase 3 scoping and study design has been completed. However, LWAG's re-evaluation of the need for this project has shifted it to a low priority status, given other LWAG projects deemed to be much higher in importance. For this reason, the project is currently being withheld from review by CMER until higher priority projects have been addressed. Data from the Type N Experimental Buffer Treatment Project in Hard Rock Lithologies may inform the importance of revisiting this project.

Extensive Riparian Status and Trend Monitoring Program

Extensive Riparian Status and Trend Monitoring –Temperature Component, Type Np Westside Project

Description:
This project is intended to develop unbiased estimates of the frequency distribution of Type Np stream temperatures across FP HCP lands in western Washington. Stream temperatures are monitored using recording thermographs at upstream and downstream locations; air temperature is monitored using a recording thermograph at the stream reach. Along with stream temperature measurements, shade, riparian vegetation type, LWD, and several channel measurements are collected.

Status:
Sampling has been completed the Type Np Westside streams. The report was initially reviewed by RSAG and CMER then revised again based on the ISPR review of the Eastside Type F report. This copy was reviewed by RSAG and is awaiting revision based on comments received. We expect these to be completed in spring 2014.

Extensive Riparian Status and Trend Monitoring

Extensive Riparian Status and Trends Monitoring - Temperature, Type Np Eastside Project

Description:
This project is intended to develop unbiased estimates of the distribution of Type Np stream temperatures across eastern Washington. Stream temperatures will be monitored using recording thermographs at upstream and downstream locations; air temperature will be monitored using a recording thermograph at the stream reach. Along with stream temperature measurements, shade, riparian vegetation type, LWD, and several channel measurements will be collected.

Status:
Initial site screening occurred in the summer of 2008. Only 10% of the sites inspected had flow during the summer (peak temperature) monitoring season (site requirement). Therefore, this project is planning to leverage results from the Eastside Type N Forest Hydrology Project in order to better target appropriate study sites. Site screening may follow the hydrology study report.

Extensive Riparian Status and Trend Monitoring

Extensive Riparian Status and Trends Monitoring - Vegetation, Type Np Westside and Eastside Projects

Description:
The Type Np and Type F/S eastside and westside projects will be designed to assess riparian conditions in randomly selected Type Np, F, and S stream reaches across FP HCP lands in the state in order to estimate conditions statewide. The feasibility of using the same sites used in the Extensive Riparian Status and Trends Monitoring temperature study will be investigated.

Status:
During the scoping process, a contractor was hired to investigate the feasibility of utilizing existing available aerial photography for this project to assess riparian stand conditions. The contractor concluded that this approach would not achieve the project objectives. The contractor submitted a report on the results of these investigations and a design for a revised pilot study. RSAG accepted the conclusion that the specified photography is unsuitable and requested that work on the protocol development be suspended. RSAG is currently investigating collecting riparian stand data in the field in conjunction with the Extensive Riparian Status and Trends Monitoring temperature data collection.

Type F Rule Group

Westside Type F Riparian Effectiveness Program

Westside Type F Riparian Prescription Monitoring Project

Description:
The purpose of this project is to determine how stand conditions respond over time to the Westside Type F riparian prescriptions and to evaluate the effectiveness of the prescriptions in meeting FP HCP resource objectives and performance targets. We anticipate that the project would evaluate both stands where active management of the inner zone will occur (based on meeting DFC basal area/acre targets), as well as stands where no management of the inner zone will occur when the adjacent stand is harvested. The project is anticipated to focus on the response of riparian stands and riparian inputs such as heat energy and large wood to answer the critical questions.

Status:
RSAG formed an initial writing team in 2013 to develop a charter and initiate work on forming a TWIG (Technical Writing and Implementation Group) to undertake the scoping and design of this study.

Eastside Type F Riparian Rule Tool Program

Eastern Washington Riparian Assessment Project (EWRAP)

Description:
Eastern Washington has a wide range of climatic conditions, elevations, forest types, riparian zones, and management history. The focus of the Eastern Washington Riparian Assessment Project is to document the current range of conditions of riparian stands on eastside forestlands. Information gathered through this project provided CMER and Policy with a common understanding of status and characteristics of riparian stands in lands managed under the eastside Type F prescriptions. The data were analyzed to identify patterns in the distribution of riparian stand types across eastern Washington, and relationships between riparian stand conditions and factors such as precipitation, elevation, and geology.

Due to the perceived variability of forest stand attributes being high in eastside Type F streams, Phase 1 of this study was designed to test proposed methodologies; determine appropriate sample size with current riparian data; provide a data set that could be used for future studies, such as extensive monitoring and an in-stream characterization study; and to provide a baseline for future monitoring.

As a result of variability being lower between sites than expected, Phase 2 of this study is entirely a desktop project, which analyzes existing data from 103 sites using statistics and modeling. This work will provide information on the accuracy of Forest Practices rules, habitat types, and forest health and sustainability, and analysis of how much harvest can occur on each site given stand densities and tree size. Upon completion of both phases, both reports will complete the EWRAP work.

Status:
The report for the Phase 1 was approved by CMER in 2007. Phase 2 of this study is currently being implemented and is scheduled to be completed in 2014.

Eastside Type F Riparian Effectiveness Program

Eastside Type F Riparian Effectiveness Monitoring Project (BTO Add-on)

Description:
The original RSAG study design for eastside Type F riparian prescription effectiveness monitoring called for random sampling of Type F forest practices applications (FPAs) paired with untreated control sites to determine the effectiveness of the prescriptions as applied operationally across the range of conditions on FP HCP lands. The eastside was to be sampled as a separate stratum. However, the Eastside Riparian Shade/Temperature Project demonstrated the great expense and difficulty in finding suitable treatment and control sites in eastern Washington. Consequently, the decision was made to utilize the BTO temperature study sites for the eastside riparian prescription monitoring component, despite the fact that they were not randomly selected, in order to save money, expedite implementation of the project, and provide an integrated package of results for the adaptive management process. This will be accomplished by collecting additional data on changes in vegetation, buffer integrity, and LWD recruitment at the BTO temperature study sites. (Consequently, the Eastside Type F Riparian Effectiveness Monitoring Project is sometimes referred to as the BTO add-on project.)

Status:
Initial post-harvest sampling is completed for all 18 sites included in the BTO add-on project, and the data have been error checked and input into a database set up to analyze the data. Five-year post-harvest data was collected at seven sites in the summer of 2010 and one site in 2011. Data collection at two sites were completed in 2013, the data error checked prior, and submitted to CMER staff at the NWIFC. One site (Cole Creek) remains to be surveyed in 2014 and following its completion the 5-year Post Harvest Survey work will be complete. Data analysis and report writing by NWIFC CMER staff will begin in the second half of 2014. Post-harvest sampling has been staggered over several years due

to landowner harvest schedules; therefore, fifth-year post-harvest sampling has also be staggered over several years.

Eastside Type F Riparian Effectiveness Program

Bull Trout Overlay Temperature (Eastside Riparian Shade/Temperature)

Description:
The Eastside Riparian Shade/Temperature Project is designed to evaluate the effectiveness of both the all available shade rule and the standard eastside riparian prescriptions in meeting FP HCP resource objectives, and to determine if a difference exists between shade and stream temperature provided by the BTO all available shade prescriptions and the standard shade requirements. This field study was originally administered by BTSAG but is currently administered by RSAG. The study design specified a two-year pre-harvest data-collection period, a year for harvesting, and a two-year post-harvest data-collection period; however, due to delays in landowner harvest schedules, post-harvest data collection has also been delayed for many sites, extending the project time line for several years. This study is combined with the Solar Radiation/Effective Shade Project.

Status:
Post-harvest data collection was completed during the 2010 field season. The draft report has been through CMER and ISPR review. RSAG has approved sending the post ISPR draft to CMER for final approval in March 2014.

Hardwood Conversion Program (Effectiveness)

Riparian Hardwood Conversion Project

Description:
The Riparian Hardwood Conversion Project is a series of case studies at eight sites. Each site consists of landowner-designed and -implemented site-specific harvests of hardwood trees in riparian buffers. In each case, harvest is followed by replanting of conifers. Data about tree regeneration and residual stand condition are collected at each site. Data collection also includes annually asking participating landowners to document their silvicultural strategies and the costs and benefits associated with each conversion.

Status:
Harvest has occurred at all sites, and 4 years after harvest, monitoring of regeneration is complete. A draft interim report describing the pre-harvest and harvest silviculture, and costs and benefits of the harvests at six of the eight

sites, was reviewed by CMER. This report is titled “The Draft Case Study Reports: Hardwood Conversion Study,” and the principal investigators are with Duck Creek Associates. Final drafts of the eight case study reports were received in Spring of 2012 and will be reviewed by CMER. An outline for a summary report that will synthesize the results and findings from the eight case studies has been approved by RSAG. After RSAG review, the synthesis summary report will be reviewed by CMER concurrently with the case study reports. This summary report is expected to be completed in 2014.

Pending funding by Policy, RSAG intends to revisit all eight sites in 2016 for a final 10-year assessment of regeneration status (survival rates by species, heights, brush competition). These revisits are in response to concerns that four-year post-harvest stocking data are not adequate to reliably determine the likely future stocking levels at these sites. Results and analysis of data from these 2016 visits will be incorporated as addenda to the final case studies and summary report.

Extensive Riparian Status and Trend Monitoring

Extensive Riparian Status and Trend Monitoring – Temperature Component, Type F/S Eastside

Description:
This project is intended to develop unbiased estimates of the frequency distribution of Type F and S stream temperatures across FP HCP lands in eastern Washington. Stream temperatures are monitored using recording thermographs at upstream and downstream locations; air temperature is monitored using a recording thermograph at the stream reach. Along with stream temperature measurements, shade, riparian vegetation type, LWD, and several channel measurements are collected.

Status:
Approximately 50 sites were sampled over the 2007–2008 summer seasons. A draft report covering both years of sampling was reviewed by RSAG and CMER, revised accordingly, and reviewed by ISPR. The revised report was completed in June 2013.

Extensive Riparian Status and Trend Monitoring

Extensive Riparian Status and Trend Monitoring – Temperature Component, Type F/S Westside

Description:

This project is intended to develop unbiased estimates of the frequency distribution of Type F and S stream temperatures across FP HCP lands in western Washington. Stream temperatures are monitored using recording thermographs at upstream and downstream locations; air temperature is monitored using a recording thermograph at the stream reach. Along with stream temperature measurements, shade, riparian vegetation type, LWD, and several channel measurements are collected.

Status:
This project was implemented simultaneously with the westside Type Np project. Approximately 60 sites were sampled over the 2008–2009 summer seasons. A draft report covering both years of sampling has been reviewed by RSAG and CMER. This we revised based on the ISPR review of the eastside report. This was reviewed by RSAG and is awaiting revision based on these comments. This is expected by spring 2014.

Extensive Riparian Status and Trend Monitoring

Extensive Riparian Status and Trends Monitoring - Vegetation, Type F/S Westside and Eastside Projects

Description:
The Type N and Type F/S eastside and westside studies will be performed concurrently. These projects will assess riparian conditions in randomly selected Type N, F, and S stream reaches across FP HCP lands in the state in order to estimate conditions statewide. The vegetation assessment component will use aerial photography evaluation methods and is not dependent on fieldwork to implement. All vegetation assessment is expected to occur once the methodology has been finalized. Existing data from other riparian projects will be used to help calibrate that effort and also to validate results of the remote-sensing characterization. The plan is to assess conditions at the same sites used in the temperature study and to use the ground data collected in that study (as well as any other riparian studies) as verification for aerial photo interpretations.

Status:
A study design has not been completed.

Unstable Slopes Rule Group

Mass Wasting Effectiveness Monitoring Program

Mass Wasting Landscape-Scale Effectiveness Monitoring Project

Description:

This project will be designed to evaluate trends in the number and volume (or area) of landslides over time at the watershed scale using landslide inventory methods similar to those of watershed analysis. In broad terms, the trend monitoring will include sites that sample statewide variability in the factors that control landslide occurrence. These sites will consist of tracts containing both FP HCP–regulated lands and other forestlands under no or less extensive management (representative of natural or background conditions). Landslide rates and volume fluxes from both will be compared. Data to infer status and trends may consist of an inventory of landslides using data collected through the Landslide Hazard Zonation Project, complemented with aerial photography, terrain, topographic, forest cover, and road network maps. When prioritized, UPSAG will work to better understand how a study might be designed to isolate the mass wasting trends associated with the forest practices rules from the dynamic noise of the natural system.

Status:
Preliminarily scoped and on hold.

Mass Wasting Effectiveness Monitoring Program

Unstable Slope Criteria Project: An Evaluation of Hillslopes Regulated under Washington Forest Practices Rules

Description:
This project will evaluate the degree to which the landforms described in the unstable slopes rules identify potentially unstable areas with a high probability of impacting public resources.

The project will be designed to evaluate the original Forests & Fish Report Schedule L-1 research topic: “Test the accuracy and lack of bias of the criteria for identifying unstable landforms in predicting areas with a high risk of instability” (FFR p. 127). The project replaces the Testing the Accuracy of Unstable Landform Identification Project, based on feedback from Policy at the November 2010 meeting. At that meeting, UPSAG presented two interpretations of the original Forests & Fish Report Schedule L-1 topic and asked for direction as to how to proceed and prioritize efforts. UPSAG understands Policy’s direction is to evaluate the landslide susceptibility of different slopes/landforms in the interest of evaluating current rule-identified landforms and identifying/characterizing additional potentially unstable landforms.

Status:
The project is on the list for re-scoping using the TWIG approach as a pilot project under the LEAN process.

Road Prescription-Scale Effectiveness Monitoring

Road Prescription-Scale Effectiveness Monitoring Project

Description:
The objectives of monitoring forest roads at the prescription scale are to (1) evaluate the effectiveness of road maintenance categories in meeting road performance targets; and (2) identify sensitive situations where prescriptions are not effective. This project would address surface erosion sediment reductions from site-specific measures. An extensive body of research already exists and was used to develop WARSEM; and data collected during the Road Sub-Basin-Scale Effectiveness Monitoring Project can be evaluated to determine which measures are proving most effective at reducing sediment production, sediment delivery, and hydrologic connectivity.

Status:
This project has been targeted to be used as a pilot for the LEAN revisions to the CMER process for developing study designs. CMER is currently in the process of forming a technical writing and implementation group (TWIG) to begin scoping this project.

Wetlands Rule Group

Forested Wetlands Effectiveness

Forest Practices and Wetlands Systematic Literature Review

Description:
The Forest Practices and Wetlands Systematic Literature Review is intended to address the uncertainty about how harvesting wetlands and constructing roads in and adjacent to wetlands affects the capacity of wetlands to contribute to watershed processes that support fish, amphibians, and water quality. This project will review and synthesize scientific literature to identify and evaluate effects on wetland functions, with a primary focus on harvesting trees from forested wetlands and on road construction and maintenance activities. This project will allow WETSAG to develop testable hypotheses for future WETSAG projects; to evaluate risk to and uncertainty about protecting wetland function to inform prioritizing, scoping, and designing of future field studies; and to fill data gaps identified in the previous wetland literature review. Following the literature review, priority will be placed on scoping projects identified in the CWA assurances milestones, specifically the Wetland/Stream Water Temperature Interactions Project and the Wetland Hydrologic Connectivity Project.

Status:
This project is currently underway and is anticipated to be completed in 2014.

Forested Wetlands Effectiveness Program

Forested Wetlands Effectiveness Project

Description: The need for this project was recommended by CMER and Policy as a priority following a WetSAG field trip with Ecology that raised concerns about the potential effects of timber harvest on forested wetlands and their functions. Currently, the rules give limited protection to these systems, and little is known about the effects of harvest. This project will look at the effectiveness of current prescriptions and forest practices on these systems.

Status: WetSAG anticipates scoping this project in 2014. This project may be combined with one or more additional projects pending completion of the Wetland Strategy.

Forested Wetlands Effectiveness Program

Wetlands Program Research Strategy

Description:
The Wetlands Program Research Strategy was added to the Work Plan for the 2014FY. The strategy will address the need to reconsider how the projects could be integrated. Rather than to establish a new set of detailed milestones (date priorities for each project) Ecology inserted a new milestone that would allow the order to essentially be established as part of a CMER led wetland strategy project. WetSAG will finish the The Forest Practices and Wetlands Systematic Literature Review, and use the information as a foundation to develop both a research strategy and as a foundation to scope the forested wetlands effectiveness study.

Status:
This project began in FY 2014 and will continue for FY15.

Forested Wetlands Effectiveness Program

Wetland/Stream Water Temperature Interactions Project

Description:
This project would assess the change in water temperature in wetlands and associated streams as a result of timber harvest in forested wetlands. This project is a priority of the CWA assurances milestones; it is anticipated that scoping will begin once the Forest Practices and Wetlands Systematic Literature

Review is completed, which will inform hypothesis and study design development.

Status:
This project has not been scoped, but scoping is anticipated to begin once the Forest Practices and Wetlands Systematic Literature Review is completed.

Intensive Watershed-Scale Monitoring Cumulative Effects Program

No projects identified

Description:
Intensive monitoring is watershed-scale research designed to evaluate the cumulative effects of multiple forest practices and to provide information that will improve our understanding of causal relationships and the biological effects of forest practices rules on aquatic resources. The evaluation of cumulative effects of multiple management actions on a system requires an understanding of how individual actions influence a site and how those responses propagate through the system. This understanding will enable the evaluation of the effectiveness of management practices applied at multiple locations over time. This sophisticated level of understanding can only be achieved with an intensive, integrated monitoring effort. Evaluating biological responses is similarly complicated, requiring an understanding of how various management actions interact to affect habitat conditions and how system biology responds to these habitat changes. This program was identified in the Monitoring Design Team (MDT) Report (MDT, 2002) as an essential component of an integrated monitoring program. CMER and Policy will be scoping intensive monitoring needs for the adaptive management program.

Status:
Resource Objectives and Performance Targets have not yet been identified.

Projects on CMER budget for initiation prior to FY18 but not on Settlement Agreement Master Schedule

Type N Rule Group

Type N Amphibian Response Program

Van Dyke's Salamander Project

Description:
The Van Dyke's salamander is the only one of seven Forests and Fish amphibian species that is not adequately addressed by any previous or current study. The Van Dyke's salamander is a former Survey and Manage Species under the Northwest Forest Plan; survey protocols under the Survey and Manage Program emphasize that Van Dyke's salamander is a stenothermic cool-adapted species and that conditions for sampling must fall under narrow moisture, relative humidity, and temperature ranges. Conflicting information exists regarding the occurrence of Van Dyke's salamander on managed landscapes (ranging from total absence to fairly broad distribution). At least part of the disparity observed in Van Dyke's salamander distribution across managed and unmanaged landscapes may be due to differential seasonal detectability that arises from the species' thermal requirements. A study is being considered to address Van Dyke's salamander distribution in three phases: (1) assemble available information to characterize current (and sometimes conflicting) information and define focal question(s); (2) develop a sampling tool, including seasonal (or thermal) sampling restrictions, that incorporates detectability estimation approaches; and (3) use that tool to identify the current distribution of Van Dyke's salamander across the landscape.

Status:
This project is being scoped for a potential initiation target sometime after 2015.

CMER Projects not appearing in the Settlement Master Schedule

The following is a list of CMER Projects not appearing in the Settlement Master Schedule and their current status as described in the CMER workplan. These project include some that are ongoing an may need funding to complete, as well as some that are on indefinite hold.

Project Title	Status in Workplan
Tailed Frog Literature Review	Post ISPR editing of report underway
Tailed Frog Meta-Analysis	Analysis underway
Tailed Frog and Parent Geology	Scoping on hold
Eastside Amphibian Evaluation	Under consideration
DFC Plot Width Standardization	Scoped waiting policy approval to start
DFC Site Class Map Validation	Scoped waiting policy approval to start
DFC Trajectory Model Validation	RSAG not planning to start
DFC Aquatic Habitat	Waiting for policy direction
Eastside Temperature Nomograph	Contractor draft not accepted - on hold
Eastside Type F Channel Wood Characterization Study (ESICCS)	Draft study design - On hold
Groundwater Conceptual Model	Put on hold
CMZ Screen and Aerial Photograph Catalog and CMZ Boundary Identification Criteria	Preliminary scoping
Consistency and Accuracy of CMZ Boundary Delineations	May be included in DNR CMP
Shallow Rapid Landslide Screen for GIS	Suspended - lack of funding
Landslide Hazard Zonation (LHZ)	Suspended - lack of funding
Evapo-Transpiration Model Refinement	Scoped on hold
Landslide Classification	Scoped on hold
Groundwater Recharge Modeling	Scoped on hold
Board Manual Revision	On hold
Intensive Watershed-Scale Monitoring to Assess Cumulative Effects	Initial scope - depends on prioritization
Extensive Fish Passage Trend Monitoring	Delayed indefinately by Policy
DNR GIS Wetlands Data Layer	Second phase delegated to Policy subgroup
RMZ Resample	In Post ISPR CMER reivew
Tailed Frog Literature Review	Post ISPR editing of report underway