(2)

CMER PROJECT PROPOSAL

Mid-Year Project Proposals 2015-16

TITLE: ACCESS TO SCIENTIFIC LITERATURE

SPONSOR: CMER STAFF	WORKPLAN: [Y/N] NO COST: $ 10,000- $34,275 (TWO OPTIONS)
Rule Group: _____ WorkPlan / Critical Questions Addressed: (Is project tied to L1/L2 and the Master Project Schedule?) 1. 2. 3.	Connection to Larger Project(s) and/or Follow On Work: [Is this project bringing forward already approved work into 2015? Is it a new project? Will this project facilitate the planning of future Projects? And commitments? (if so, list project), Is this part of scoping? Support of BAS? Does the implement portions of larger study, etc.] This project will provide access to scientific literature for CMER staff, DNR and CMER participants. Access to this information will be helpful for: • Conducting literature reviews • Doing best available science analyses (BAS) and preparing BAS documents • Incorporating current science into the study design process

Study/Project Objectives: [1 - 2 sentences]

Efficient access to scientific literature is necessary for CMER to review recent and past literature related to CMER projects, and is crucial for developing thorough literature reviews, comprehensive BAS documents and robust study designs.

Problem Statement:

Currently, CMER staff at NWIFC and DNR, and CMER participants do not have ready access to scientific literature needed to conduct literature reviews and develop best available science documents, and incorporate current science into study design documents.

Project Summary: This funding would be used to purchase access to literature provided by Web of Science, the premier database for scientific journals. There are multiple options: one option is for a 3 year subscription including full access for an unlimited number of subscribers to 12,665 journals and 59 million articles. Subscription also includes permanent access to all articles indexed between 1995-2014, even after subscription has expired.

Other options include subscriptions for < 3 years, and opting to get a different range of backfiles (more or

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less). Please see tables below for more specifics on cost. The subscription fees are annual; however, the backfiles fee is a one time fee (paid in first year of subscription)

Web of Science - One Edition		
Science Citation Index Expanded		
Subscription	Year 1	$7,023
Subscription	Year 2	$7,374
Subscription	Year 3	$7,743

Web of Science - One Edition				
Backfiles				
From	To	List Price	CMER Pricing	Special Pricing through 11/23/15
2010	2014	$6,672	$6,005	$4,804
2005	2014	$10,183	$9,165	$7,332
1995	2014	$16,854	$15,169	$12,135
1985	2014	$22,121	$19,909	$15,927
1975	2014	$26,335	$23,702	$17,776
1900	2014	$40,731	$36,658	$27,493

SAG, CMER, Policy: It will advance the work of all three groups by allowing us to keep abreast of scientific research being done by other groups around the region and elsewhere, to allow us to determine whether our questions have already been answered through the research of other scientists, and to inform our experimental design, policies and rules, and any other scientific endeavors.

Project Execution & Schedule: [3-4 sentences] High-level summary of how to accomplish study/project (If known). Tasks and Methods.

List bullet items of tasks (and methods to complete work).

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- Facilitate with DNR or NWIFC (preferably DNR) who will have access and how IP addresses or log-ins will be assigned/granted access
- Subscribe and pay year one fees
- Distribute access (log-ins or IP address information)

Outcomes/Deliverables: [3-4 sentences] List/describe outcomes and products and high level discussion on whether deliverables will assist other projects/studies or assist with priority policy needs, etc.

More complete and comprehensive literature reviews, and more inclusion of recent research in the scoping and design process, and all CMER documents and decisions.

Total

TIMELINE, EFFORT, COSTS (EXAMPLE):

Task	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Task 1: [redacted]									
Task 2: Subscribe									
Task 3: Distribute subscription									
Costs per month									
FTEs per month									

Total Cost ($): Option 1: Three years ("traditional offer"): $34,275 total;
($19,158 year 1 + $7374 year 2 + $7743 year 3)

Total Effort (FTE):

(4)

CMER PROJECT PROPOSAL

Mid-Year Project Proposals 2015-16

TITLE: WETLAND MAPPING TOOL

SPONSOR: WETSAG

WORKPLAN: YES

COST: $ 80,000

Rule Group: Wetland Rules

WAC 222-30-010 *(4)
WAC 222-30-020 *(7)

Schedule L-1 Proposed project is associated with:
Wetlands performance target: No net loss in the hydrologic functions of wetlands

Master Project Schedule: yes on list

Forested Wetlands Effectiveness Project critical questions:

1. How do the magnitude and duration of forest practices in forested wetlands affect water regimes, water quality, plant and animal habitats, and aquatic resources in those wetlands and linked (via surface or subsurface flow) downstream waters?
2. How well do current forest practices rules in forested wetlands meet the Forest and Fish aquatic resource objectives and performance targets, and the goal of no-net-loss of functions of those wetlands by half of a timber rotation cycle?

Connection to Larger Project(s) and/or Follow On Work:

This project supports the Forested Wetlands Effectiveness Project which is approved and under development by the Forested Wetlands Effectiveness Program TWIG (WetTWIG).

Study/Project Objectives:

1. Develop a wetland delineation model that would interface as an ArcMap tool.
2. Calibrate wetland delineation model to predict the probability of wetlands by type (including forested wetlands) on forest lands of western Washington.

Problem Statement:

A GIS analysis by WETSAG of existing wetland mapping data showed that available tools to identify wetland location and extent are poor, especially for forested wetlands. Therefore, the WetTWIG needs more information about forested wetlands concerning: their location, distribution, size, and probability of occurrence in each region and geophysical landscape. These data are essential to provide context for: 1) focusing research on forested wetlands and associated typed-waters that may be vulnerable to harvest and road impacts, and 2) assessing the spatial applicability (inference) of study findings to other landscapes.

Project Summary

The proposed project is the first phase of a two-phase project. Phase 1 would develop a GIS-based toolset to systematically compare and test different approaches and data types for remote mapping of wetlands. This toolset will serve to:

1) determine the optimal methodology to identify wetlands for a particular region and for particular wetland types,

2) determine the accuracy and precision to which different data sources (e.g., LiDAR versus NED DEMs, spectral imagery versus DEM) can resolve wetlands, and
3) create maps delineating probable wetland locations and types that can be calibrated and validated to local conditions.

Phase 2 would conduct the training and verification of the toolset using reliable field data from the Olympic Experimental State Forest (OESF). Phase 2 would be performed in collaboration with WDOE as part of the EPA-funded field-based effort.

A collaborative research team headed by Dr. M. Moskal (UW Precision Forest Unit), Dr's D. Miller and L Benda (TerrainWorks), and Dr. Amy Yahnke (SEA Program, WA Dept of Ecology) would perform the project. Data and collaboration with the OESF will be facilitated by Dr. Teodora Minkova (Research & Monitoring Manager, WDNR)

Project Execution & Schedule

The project would combine results from automated pattern-recognition (object-based) techniques, using high-resolution imagery (e.g., NAIP), with process-based (wetness index) and empirical techniques (e.g., logistic regression), using topographic, geologic, soils, land cover, and climate information. Project tasks include:

- Identify a set of remote sensing data that will be combined to best identify wetlands in forested landscapes. This would include indices indicative of wetland occurrence from published literature and the development of new indices that incorporate the complexities of Washington's forest lands.
- Apply a suite of software tools that will use the available remote sensing data to construct the wetland indices.
- Provide open-source capacity within ArcGIS to use the constructed indices to create maps indicating probability of wetland occurrence. The maps will be evaluated, calibrated, tested, and revised against other data sources, such as field-mapped wetland locations.

The project would be performed over a five month period (February – June 2016)

Outcomes/Deliverables:

1) An ArcGIS toolset. This toolset will provide capabilities to
   - Generate wetland-index maps derived from a suite of analysis techniques and data sources. Index values provide hypotheses to test against field observations. They can be used to predict wetland locations, sizes, and types, and to predict the sensitivity of these attributes to physical controls, such as changes in land cover and climate. These predictions can guide field efforts, and the degree to which predictions are successful will allow comparison of different analysis techniques and data sources.
   - Combine other available data (e.g., field surveys) with the wetland-index maps to calibrate the estimated probabilities of wetland occurrence.
   - Compare maps of wetland occurrence to other data on wetland locations to assess the accuracy of the derived maps.
   - Derive statistics on the spatial density of wetlands, and on the distribution of wetland types and sizes.

   The toolset will include help files illustrating its use, and describing the techniques and data used.
2) A report describing the model that is suitable for submission to a peer-reviewed journal for publication.
3) Leverage of CMER research funding through collaboration with UW, WDOE, WDNR, and TerrainWorks.

Total	**$80,000**

CMER PROJECT PROPOSAL

Project Title: Wetland Mapping Tool

TIMELINE, EFFORT, COSTS

Tasks	UW Precision Forestry Unit	Subcontractor TerrainWorks
1) Identify a set of remote-sensing data and analysis techniques to best identify wetlands in forested landscapes. a) Catalog existing options. b) Identify promising new analyses and combinations of existing approaches.	1 wk	1 wk
2) Apply a suite of software tools to construct wetland indices. a) Assemble available software and models. b) Develop computer models to implement new indices. c) Write computer programs to enable model interactions.	4 wk	6 wk
3) Capacity within ArcGIS to use the constructed indices. a) Development of a user interface. b) Technical documentation and user instructions.	1 wk	4 wk
4) Report	1 wk	1 wk
Totals	7 wk	12 wk
Total Cost	$30,000	$50,000

Total Cost ($): $80,000
Total Effort (FTE): 19 wk

CMER PROJECT PROPOSAL

Mid-Year Project Proposals 2015-16

[Proposals should be no more than 2 pages (12pt font). Examples/suggestions can be deleted to create additional space]

TITLE: EASTSIDE MODELING EVALUATION PROJECT (EMEP)

SPONSOR: SAGE	WORKPLAN: YES AS PART OF EWRAP COST: $65K
Rule Group: Eastside Type F Riparian Rule Tool WorkPlan / Critical Questions Addressed: (Is project tied to L1/L2 and the Master Project Schedule?) 1. Q2 - Will the prescriptions produce forest conditions and processes that achieve the performance target in appropriate time frames? 2. LWD4 Determine rates of natural regeneration and tree mortality in riparian management zones and their effects on the ability of management prescription to provide riparian function(s), including LWD recruitment. 3.	Connection to Larger Project(s) and/or Follow On Work: [Is this project bringing forward already approved work into 2015? Is it a new project? Will this project facilitate the planning of future Projects? And commitments? (if so, list project), Is this part of scoping? Support of BAS? Does the implement portions of larger study, etc.] ▪ Yes, Phase 2 of EWRAP was approved in 2008 ▪ Yes, depends on results ▪ Yes, Eastside Riparian Assessment Project ▪ No, Nothing yet

Study/Project Objectives: [1 - 2 sentences]

Determine the number of stands eligible for timber harvest in the current year and changes to that by decade with no silvicultural manipulation simulated.

Determine for each stand at current age and by decade to year 50: a) total basal area, b) stand density (trees per acre), c) cuft volume/acre, d) bdft volume/acre, e) stand density index (sdi), f) quadratic mean diameter (qmd) and g) relative density.

Problem Statement: [1-2 sentences] Specific issue being addressed. Why is this project necessary? How will it help answer the Project Objective?

The goal of the eastside Type F riparian prescriptions is to create riparian stand conditions that meet three objectives: 1) provide riparian functions needed for recovery of fish and stream associated amphibian populations, 2) maintain riparian stands within the range of conditions associated with historic disturbance regimes, and 3) maintain riparian stands within a range of conditions that minimize risk of catastrophic damage from insect fire, and disease.

Currently no work has been completed to determine if the current prescriptions will meet these goals in the long-term.

Project Summary: [3-4 sentences] What is being proposed, recommendations on who could do work, how the project is tied to larger/subsequent projects, and how the project addresses the workplan and critical questions. How will it help progress each of the following groups; SAG, CMER, Policy work.

EMEP will evaluate current riparian stand conditions in context of the results of the first two projects to evaluate

the extent to which current riparian stands achieve the three FFR eastside riparian objectives (provide necessary riparian functions, are within the range of historic stand conditions, are at risk for catastrophic damage due to disease or insect outbreaks). It will also identify the type and extent of stand conditions that require active management to meet FFR objectives.

Project Execution & Schedule: [3-4 sentences] High-level summary of how to accomplish study/project (If known). Tasks and Methods.

List bullet items of tasks (and methods to complete work).

- Submit RFQ for desired qualifications or Interagency agreement
- Select most qualified contractor
- Initiate project work

Outcomes/Deliverables: [3-4 sentences] List/describe outcomes and products and high level discussion on whether deliverables will assist other projects/studies or assist with priority policy needs, etc.
Determine to what extent do current riparian stands meet the size and basal area thresholds for timber harvest across regulatory habitat types (elevation bands)?

Show how will stand characteristics change over time with no timber harvest and with timber harvest applied to the limits that rules allow?

Show differences in stand characteristics associated with distance to the stream?

Show how susceptible to insect, disease, and crown fire are the stands sampled in EWRAP, Phase 1 and how does susceptibility change over time?

Show projected rates and characteristics of stand mortality in riparian stands with and without management intervention?

Total

TIMELINE, EFFORT, COSTS (EXAMPLE):

Task	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Task 1: (ex): Proposal Development	SAGE submit draft to CMER								
Task 1:		RFQ							
Task 2:			Contractor selection						
Task 3:				Project initiation		Draft report		Final Report	
Costs	$0	$0	$0				35k	30K	

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Sent: Thursday, October 22, 2015 11:18 AM
To: Haemmerle, Howard (DNR) <Howard.Haemmerle@dnr.wa.gov>
Cc: bdanehy@ncasi.org; Julie Dieu (julie.dieu@rayonier.com) <julie.dieu@rayonier.com>
Subject: RE: Adaptive Management Program and CMER mid-year Project Proposals

Hi Howard,
Here are the estimated equipment costs for installing 50 plots. Tom just got back in this morning.

Thanks,
Charlie

Charlie Luce, PhD
Research Hydrologist

Forest Service
Research and Development
Rocky Mountain Research Station

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Caring for the land and serving people

1) Per Plot Equipment

Category	Road Sediment Plot	Unit cost	Units	Cost
Drainage	Pipe, N12, per foot	$ 2.20	80	$ 176
Drainage	Pipe fittings and elbows	$ 10.00	2	$ 20
Drainage	Ditch dams, 24" N12 split pipe	$ 10.00	2	$ 100
Waterbar	Lumber, 2" x 6", per foot	$ 1.10	100	$ 110
Waterbar	Conveyor belt, per foot	$ 5.00	50	$ 250
Waterbar	Hardware (fasteners, drill bits, filter fabric, etc)	$ 75.00	1	$ 75
Tiping bucket	Tipping bucket flow gage and splitter	$ 800.00	1	$ 800
Tiping bucket	Data logger and enclosure	$ 110.00	1	$ 110
Tiping bucket	Reed switch and magnet	$ 20.00	1	$ 20
Tiping bucket	Split resevoir 32 gal	$ 60.00	1	$ 60
Tiping bucket	Wildlife escape ramp	$ 10.00	1	$ 10
Tiping bucket	Tank, 500 gal steel	$750.00	1	$ 750
	Total			**$ 2,481**

2) Cost for 50 Plots (estimate for current scoping of project).

Number of plots	per plot	
50	$ 2,481	$ 124,050