

SOUTH DAKOTA BOARD OF REGENTS

Academic and Student Affairs

AGENDA ITEM: 4 – I

DATE: March 30 – April 1, 2016

SUBJECT: Joint Powers Agreement – SDSU & Department of Agriculture

The South Dakota Department of Agriculture (DOA) is seeking to enter into an agreement with South Dakota State University (SDSU) to fund a graduate student to complete a two-year study to collect and analyze data and prepare a report covering the efficacy and cost-benefit analysis of the direct and indirect actions on mountain pine beetle infestation rates and tree mortality versus the no action alternative (See Attachment I). DOA will provide up to \$62,334, broken down as follows:

Two years of a 12 month ½ time research assistantship	\$45,462
Travel expenses for ten site visits	\$7,000
Anticipated Indirect Rat for the project	<u>\$9,872</u>
Total estimated expenses	\$62,334

SDSU will match the funds through state funded faculty time devoted to the project, volunteer labor and unrecovered overhead. DOA recently instituted the practice of requiring joint powers agreements for contractual arrangements with other state entities, which in turn necessitates Board action pursuant to BOR Policy 5:3 (“Contracts Requiring Board Action...D. Joint powers agreements”), as opposed to having the agreement executed at the institutional level as it would have been in years past.

RECOMMENDED ACTION OF THE EXECUTIVE DIRECTOR

I move to approve the Joint Powers Agreement set forth in Attachment I.

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE
STATE OF SOUTH DAKOTA
JOINT POWERS AGREEMENT

AGREEMENT made and entered into by and between the South Dakota Department of Agriculture, an agency of the State of South Dakota, 523 East Capitol Ave., Pierre, SD 57501-3182, (hereinafter "SDDA") and the South Dakota State University, 1015 Campanile Ave, SAD 200, Box 2201, Brookings, SD 57007 (hereinafter "SDSU").

I

GENERAL PROVISIONS

SDDA hereby enters into this Agreement for services with SDSU in consideration of and pursuant to the terms and conditions set forth herein.

1. SDSU and SDDA will perform those services described in the Work Plan, attached hereto as "Exhibit A Management of a mountain pine beetle outbreak versus the no action alternative: an analysis" and by this reference incorporated herein.

2. SDSU services under this Agreement shall commence on May 1, 2016, and end on the 30th Day of September 2018, unless terminated pursuant to terms hereof.

3. SDSU will have access to SDDA equipment, supplies, and facilities as needed and approved by SDDA.

4. SDDA will make payment for services as provided in Exhibit A. The total contract amount will not exceed \$62,334. SDSU will provide matching expenditures that at least equal the total contract amount. Payments will be made upon submission of non-cash vouchers from SDSU. Documentation of expenditures is necessary to show that the required match for federal funds has been met by SDSU.

5. SDSU may charge an administrative fee or indirect charge equal to the indirect rate allowed by the United States Forest Service for federal grants provided to SDDA. For this agreement, the SDDA indirect rate is 24.8 percent. The difference between the University's administrative fee and the allowed indirect rate for RCF may be used as in-kind match.

6. While performing services hereunder, SDSU is an independent contractor and not an officer, agent, or employee of SDDA.

7. SDSU agrees to report to SDDA any event encountered in the course of performance of this Agreement which results in injury to a person or property of third parties, or which may otherwise subject SDSU or SDDA to liability. SDSU shall report any such event to SDDA immediately upon

discovery. SDSU's obligation under this section shall only be to report the occurrence of any event to SDDA and to make any other report provided for by their duties or applicable law. SDSU's obligation to report shall not require disclosure of any information subject to privilege or confidentiality under law (e.g., attorney-client communications). Reporting to SDDA under this section shall not excuse or satisfy any obligation of SDSU to report any event to law enforcement or other entities under the requirements of any applicable law.

8. This Agreement may be terminated by either party hereto upon thirty (30) days written notice. In the event SDSU breaches any of the terms or conditions hereof, this Agreement may be terminated by SDDA at any time with or without notice. If termination for such a default is effected by SDDA, any payments due to SDSU at the time of termination may be adjusted to cover any additional costs to SDDA because of SDSU's default. Upon termination SDDA may take over the work and may award another party an agreement to complete the work under this Agreement. If after SDDA terminates for a default by SDSU it is determined that SDSU was not at fault, then SDSU shall be paid for eligible services rendered and expenses incurred up to the date of termination.

9. This Agreement depends upon the continued availability of appropriated funds and expenditure authority from the Legislature for this purpose. If for any reason the Legislature fails to appropriate funds or grant expenditure authority, or funds become unavailable by operation of law or federal funds reductions, this Agreement will be terminated by SDDA. Termination for any of these reasons is not a default by SDDA nor does it give rise to a claim against SDDA.

10. This Agreement may not be assigned without the express prior written consent of SDDA. This Agreement may not be amended except in writing, which writing shall be expressly identified as a part hereof, and be signed by an authorized representative of each of the parties hereto.

11. This Agreement shall be governed by and construed in accordance with the laws of SDDA of South Dakota. Any lawsuit pertaining to or affecting this Agreement shall be venued in Circuit Court, Sixth Judicial Circuit, Hughes County, South Dakota.

12. SDSU will comply with all federal, state and local laws, regulations, ordinances, guidelines, permits and requirements applicable to providing services pursuant to this Agreement, and will be solely responsible for obtaining current information on such requirements.

13. SDSU may not use subcontractors to perform the services described herein without the express prior written consent of SDDA. SDSU will include provisions in its subcontracts requiring its subcontractors to comply with the applicable provisions of this Agreement, to indemnify SDDA, and to provide insurance coverage for the benefit of SDDA in a manner consistent with this Agreement. SDSU will cause its subcontractors, agents, and employees to

comply, with applicable federal, state and local laws, regulations, ordinances, guidelines, permits and requirements and will adopt such review and inspection procedures as are necessary to assure such compliance.

14. Any notice or other communication required under this Agreement shall be in writing and sent to the address set forth above. Notices shall be given by and to Gregory Josten on behalf of SDDA, and by Dr. James J. Doolittle, on behalf of SDSU, or such authorized designees as either party may from time to time designate in writing. Notices or communications to or between the parties shall be deemed to have been delivered when mailed by first class mail, provided that notice of default or termination shall be sent by registered or certified mail, or, if personally delivered, when received by such party.

15. In the event that any court of competent jurisdiction shall hold any provision of this Agreement unenforceable or invalid, such holding shall not invalidate or render unenforceable any other provision hereof.

16. All other prior discussions, communications and representations concerning the subject matter of this Agreement are superseded by the terms of this Agreement, and except as specifically provided herein, this Agreement constitutes the entire agreement with respect to the subject matter hereof.

II.

JOINT POWERS

A. SDDA and SDSU agree to the following provisions pursuant to the Joint Powers Act (SDCL 1-24):

1. This Agreement does not establish a separate legal entity as contemplated by SDCL 1-24-5. The cooperative undertaking described herein will be financed and conducted under the provisions of this agreement by SDDA and SDSU respectively. Each party has responsibilities under the terms of this Agreement and no joint board or joint administrator will be used. Purchase and maintenance of equipment used to fulfill the agreement will be undertaken by the respective agencies as described herein. No real property will be purchased to use for this Agreement.
2. A copy of this Agreement will be filed by SDDA, with the Attorney General and the Legislative Research Council not more than 14 days after execution as required by SDCL 1-24-6.1
3. Financing required by this agreement will come from regular annual budgets.
4. This agreement may be terminated by either party upon thirty (30) days written notice without cause.

5. All parties must comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352, 42 U.S.C. 2000d) and, in accordance with Title VI of that act, no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the applicant receives Federal financial assistance and will immediately take any measures necessary to effectuate this agreement.

6. Nothing in this Agreement shall be construed as an indemnification by one party of the other for liabilities of a party or third person for property loss, or damage, or death, or personal injury arising out of the performance of this Agreement. Any liabilities or claims for property loss, or death, or personal injury by a party or its agents, employees, contractors or assigns or by third persons, arising out of and during this agreement shall be determined according to applicable law.

In Witness Whereof, the parties signify their agreement effective the date above first written by the signatures affixed below.

SDDA

BY: _____ Date: _____
William Smith, Director

AND BY: _____ Date: _____
Lucas Lentsch, Department Secretary

SDSU

BY: _____ Date: _____
James Doolittle, Associate VP Research Assurance and
Sponsored Programs

- State Agency Coding (MSA Center) 0322400.
- State Agency MSA Company for which contract will be paid 2019.
- Object/subobject MSA account to which voucher will be coded 5204140.
- Name and phone number of contact person in State Agency who can provide additional information regarding this contract William K. Smith, 605-773-4351.
- Federal grant funding source: 15-DG-11020000-043 MOD #1

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE
STATE OF SOUTH DAKOTA
JOINT POWERS AGREEMENT

Exhibit A

Management of a mountain pine beetle outbreak versus the no action
alternative: an analysis

John Ball¹ and Kurt Allen²

¹Forest Health, South Dakota Department of Agriculture/ Extension Forestry, South Dakota State University; ²Forest Health Leader, USDA Forest Service

Introduction

The mountain pine beetle (*Dendroctonus ponderosae* Hopkins, Coleoptera: Curculionidae, Scolytinae) is a bark beetle native to western North America and its distribution encompasses the Black Hills of South Dakota and Wyoming (Wood 1982). The Black Hills is a forested refuge on the Northern Plains and covers almost 16,000 km² of land. This forest is dominated by a single tree species, ponderosa pine (*Pinus ponderosa* Dougl. ex Law). There is almost 480,000 ha of ponderosa pine in the Black Hills (Riva 2009) and it occurs on all elevations and aspects. The two major disturbance agents of ponderosa pine in the Black Hills are fire and mountain pine beetle. The Black Hills of western South Dakota has and mountain pine beetle epidemics have been recorded there since the 1890s, each lasting 10 years or longer (Lessard 1986). Ponderosa pine stand morality from mountain pine beetle can be 50 percent or greater during these epidemics (McCambridge et al. 1982). The current mountain pine beetle infestation in the Black Hills began in late 1990s. It became an epidemic in the 2000s and now appears to be static or declining in many areas of the Black Hills (Harris et al. 2014).

As the current epidemic subsides, there is a critical need to evaluate the direct and indirect actions, also referred to as controls, which were conducted to manage the beetle. An array of direct and indirect actions were utilized throughout western North American to manage the mountain pine beetle during this latest epidemic. Direct actions are those employed to reduce or eliminate beetle populations (Carroll et al. 2006), while indirect actions are aimed at manipulating stand conditions to reduce the susceptibility to an infestation (Nelson et al. 2006). The objective of direct actions are to kill the beetles before they emerge as adults with the intent to reduce their population to an endemic state (Shore and Safranyik 2004). Direct actions include removal of infested trees (Fall et al. 2004), pheromone-baited trees (Thomson 1991), and solar treatments (Ball and Taecker 2013, Negron et al. 2001). Indirect action center on reducing the density of stands and their susceptibility to mountain pine beetle (Fettig et al. 2007). The reduced success of beetle in thinned stands may be due to enhanced vitality among the

residual trees (Waring and Pitman 1985) or microclimate alterations that influence beetle mass attacks success due to changes in flight behavior and semiochemical movement (Bartos and Amman 1989, Thistle et al. 2004). A combination of direct and indirect actions are recommended when infestation are widespread (Hall 2004). However, at a fine spatial scale, there has been little research examining the efficacy of these widely used treatment strategies. Few studies that have assessed the efficacy of bark beetle management and assessed their costs and benefits (Six et al. 2014).

A wide array of mountain pine beetle management actions have taken place across the Black Hills during the course of this epidemic from indirect, thinnings, to direct such as sanitation harvests to solar treatments. There is no better example of the application of these direct and indirect actions than Custer State Park located in the southern Black Hills of South Dakota. Custer State Park is located in the southern Black Hills of South Dakota approximately 55 km south of Rapid City, SD. The 960 ha northwestern corner of Custer State Park, known as the Needles, experienced an incipient-epidemic mountain pine beetle population transitioning to an epidemic population by the early 2000s. During this epidemic indirect actions, thinnings, have been conducted to reduce stand susceptibility as well as direct actions, sanitation harvests and solar treatments. In addition, semiochemicals have been employed with aggregation pheromones used as barrier and grid baiting as well as lethal baiting. Anti-aggregation pheromones have been used to protect the relic limber pine (*Pinus flexilis* James) stands along Cathedral Spires. High-value trees in campgrounds and near resort buildings have been treated with carbaryl or permethrin to protect individual trees from successful attack.

What makes Custer State Park an ideal site to evaluate the efficacy of mountain pine beetle treatments is it borders the Norbeck Wildlife Preserve, including the Black Elk Wilderness Area in which no actions were implemented during the epidemic. There were many similarities between the stand conditions on each side of this boundary before the epidemic began with each dominated by ponderosa pines with the majority of these stands in structural stage IV. However, now almost 14 years later, the appearance between the two forests is very striking.

The Sylvan Unit at the northwest corner of Custer State Park is approximately 1,100 ha and the border on three sides is the Wilderness Area. The ponderosa pine mortality from mountain pine beetle in the Black Elk Wilderness Area is nearly 100 percent (Allen and Long 2008) while within the Sylvan Unit the accumulated mortality from mountain pine beetle over the 14 year period is slightly less than 25 percent. The pine mortality due to mountain pine beetle is even lower in the main body of the Park, generally less than 10 percent, along the western and northern portions of the Park that border the Norbeck.

Objectives

This is an opportune time for an analysis of the various actions employed within the Park and contrast them with the no-action alternative for the Wilderness Area. As Six and others (2014) pointed out in their review article, studies assessing the efficacy of treatments and their costs/benefits are lacking. This analysis can yield valuable information and improve our understanding of the science of bark beetle management.

Our main objective is to compare mountain pine beetle caused tree mortality in treated stands in Custer State Park with tree mortality in the untreated stands of the Black Elk Wilderness Area. The comparison will be conducted for each year of the past 15 years as the beetle population progressed from endemic (non-outbreak) to incipient (building) to the eruptive (outbreak) phases. We will also be investigating the current stand conditions as well as regeneration within each of the treated and untreated stands in the study.

Methods

After every mountain pine beetle flight during the past decade, data has been collected in Custer State Park on the location of each group of infested trees, as well as the number of trees within each group from 1 to 913. We also have the data on the management actions that took place in every area of the Park as well as the cost associated with each of these actions. Transects have along been conducted annual throughout the Park to detect new infestations and collect data on infested trees and stands. There has also been periodic transects of the Wilderness Area to collect data similar data. While additional data will need to be collected from both forests, but we also have much currently available.

The transects and GPS data collected to date will be supplements with new surveys that will cross both lands to collect current tree and stand conditions as well as reconstruct stand condition prior to the epidemic through stumps and standing dead trees. The data and kernel density estimators will allow a continuous representation that permits spatial comparison of infestation levels through time using the protocol followed by Nelson and other (2006). Generalized Linear mixed models will be used to determine differences among the various direct and indirect actions and the controls. Pairwise comparisons of the treatments will be made using the Tukey-Kramer multiple comparison test.

Budget

Our proposal is to fund a Master of Science graduate student in the Plant Science Department at South Dakota State University to complete a two-year study to collect and analyze the data and prepare a report that will also serve as their thesis covering the efficacy and cost-benefit analysis of the direct and indirect actions on mountain pine beetle infestation rates and tree mortality versus the no action alternative. The anticipated cost of the project is \$62,334 and this includes a 1/2-time, 12 month graduate stipend for a student beginning May 2016 and ending April 2018, the associated travel costs for multiple day trips to the Black Hills to conduct the additional transects, and overhead.

Two years of a 12-mos 1/2 time research assistantship	\$45,462
Travel expenses for ten site visits	\$ 7,000
Anticipated Indirect Rate for the project	<u>\$ 9,872</u>
Total estimated expenses	\$62,334

South Dakota State University will match these funds 50:50 through state funded faculty time devoted to the project, volunteer labor and unrecovered overhead.

Literature Cited

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