

# Grant-Kohrs Ranch National Historic Site

National Park Service  
U.S. Department of the Interior

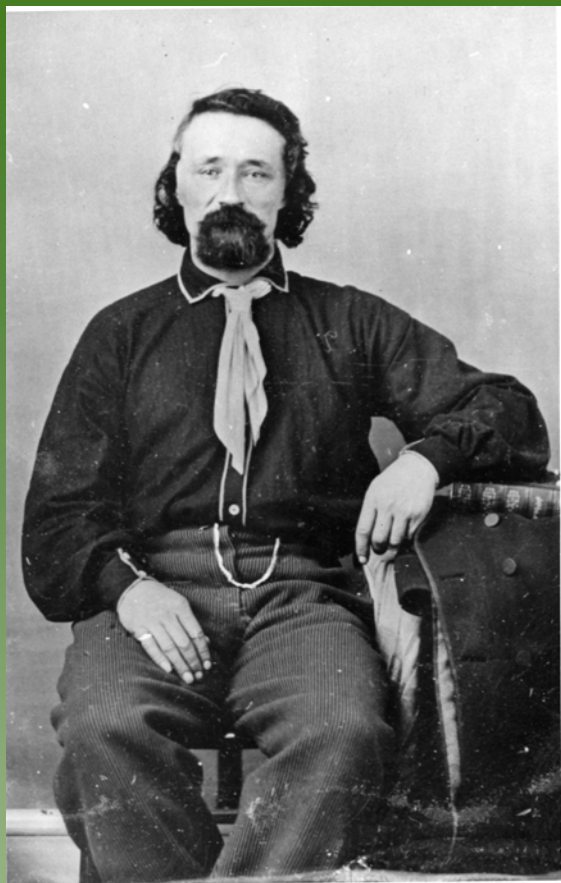


## Controlling Pests, Preserving History, and Using Video as an Integrated Pest Management Information Tool

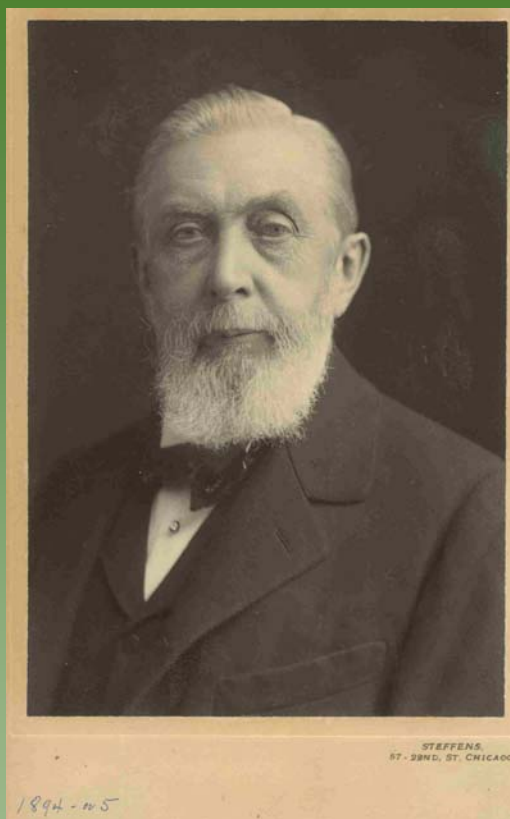


# The Nation's Ranch

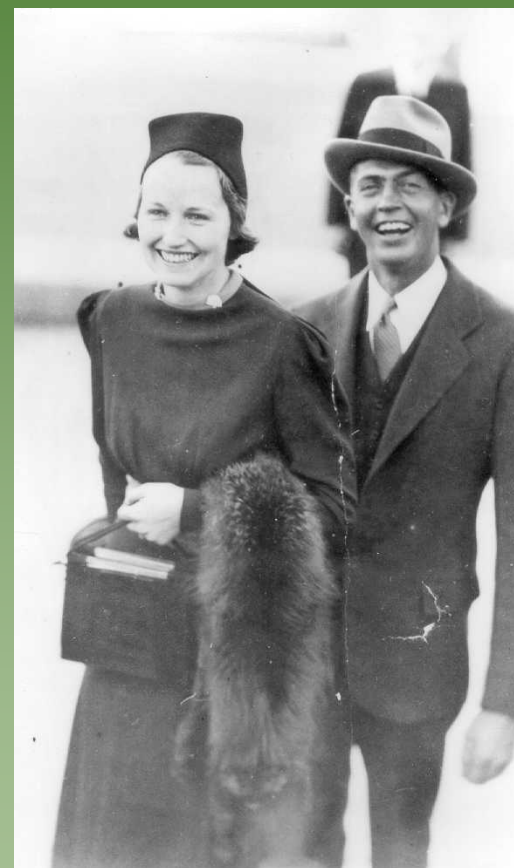




*Johnny Grant*



*Conrad Kohrs*



*Nell & Conrad Warren*

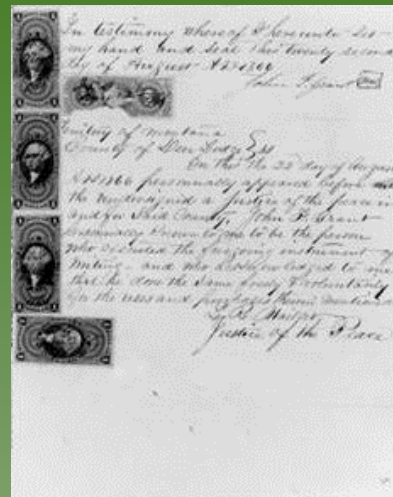


# Working Cattle Ranch





27,000 objects



75 lf archives



90% original



10% on exhibit

90% in storage



# Cluster Flies







## **Dermestid Beetles**





## Rocky Mountains

Cooperative Ecosystem Studies Unit



### CESU Goal

- Coordinate research, education and technical assistance projects among member agencies and academic institutions.





**Will Lanier**

**Montana State University  
Extension Service**

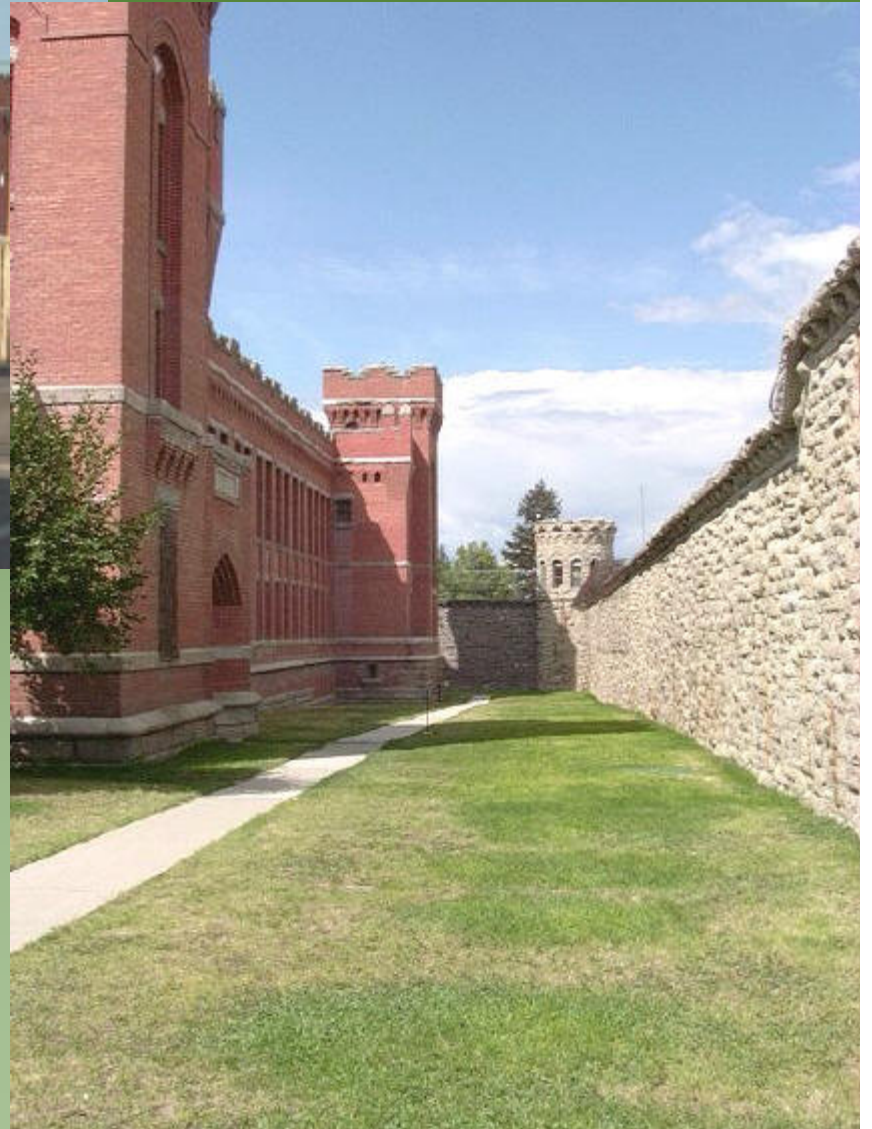
**Insect Diagnostician**

**Museum of the Rockies:  
IPM Experiences**

**Connie Estep and Will Lanier, MOR  
and MSU Extension Service.**



1



**Benefit additional local museum:  
Powell County Museum**





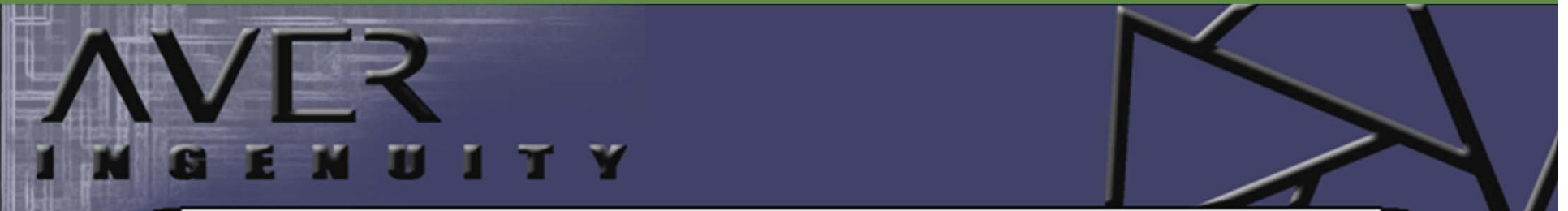
2



**Training Video for Montana and Wyoming Museums**



3



**Utilize MSU Film Program**



# RM-CESU Technical Grant

Knew and wrote to the rating criteria:

- Natural, cultural & educational components

- Match was over 100%: \$5000 grant & \$7000 match

- Requested CESU coordinator review before finalizing

**1. Title:** Integrated Pest Management Plan and Educational Video for Grant-Kohrs Ranch and Powell County Museum and Arts Foundation

**Priority:** Technical Assistance Category Priority # 1

**Category:** Technical Assistance

**2. Objective and rationale:**

Technical assistance is needed to:

- revise the draft 2001 Museum Integrated Pest Management Plan (IPM) to help control the ongoing damage of cultural resources at Grant-Kohrs Ranch National Historic Site (GRKO)
- establish an IPM Program for the Powell County Museum and Arts Foundation
- produce an educational video on museum IPM for circulation to regional museums.

GRKO is a 1,500 acre historic ranch with 89 historic structures, several housing exhibits or historically furnished period room. This site's existing Museum IPM Action Plan, written by a museum conservator, will benefit from review by an entomologist and expansion from just collections to other cultural resources. The basics of IPM have been studied and implemented. This plan will address the more difficult challenges of mitigating the presence of dermestid beetle larva around historic carpets, cluster flies by the thousands staining historic wallpaper, an increase in the presence of case-making and webbing moths, carpenter ants destroying the wall of an historic home from their channeling, pigeons roosting on historic structures and vehicles, and skunks burrowing through historic foundations.

Powell County Museum and Arts Foundation (MCMAF) is a non-profit umbrella organization that oversees several museums including the Old Territorial Prison, the Ford Auto Museum, the Frontier Museum, the Doll and Toy Museum, and the Powell County Museum. They have not yet taken an Integrated Pest Management approach in their museum. Establishing the basics will be a giant step forward for this organization.

The museum community across the states of Montana and Wyoming do not have a museum IPM training video. By using these very different sites – one with federal funding and professionally trained staff and the other a non-profit with on-the-job training – museums at all levels can benefit learning the processes used in developing these specific IPM Plans.

**3. Proposed Scope of Work**

The park curator will coordinate the project with Montana State University personnel. Technical assistance for IPM will be provided by the state extension service entomologist of the Center for Integrated Pest Management. This individual has extensive experience in IPM plans for museums. Production of the video may be coordinated through the Department of Media and Theatre Arts and their new degree program in science and natural history filmmaking, supported by the Discovery Channel.

Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)  
RM-CESU Cooperative Agreement Number:

### PROJECT COVER SHEET

**TITLE OF PROJECT:** Integrated Pest Management Plan for Grant-Kohrs Ranch and Powell County Museum and Arts Foundation and Education Video

**NAME OF PARK/NPS UNIT:** Grant-Kohrs Ranch National Historic Site

**NAME OF UNIVERSITY PARTNER:** Montana State University

**NPS KEY OFFICIAL:**

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Curator  
Grant-Kohrs Ranch NHS  
266 Warren Lane  
Deer Lodge, MT 59722  
406-846-2070 x242  
[chris\\_ford@nps.gov](mailto:chris_ford@nps.gov)

**PRINCIPAL INVESTIGATOR:**

William Lanier  
Entomologist, Insect Diagnostician/Integrated Crop Pest Management Assistant  
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**RESEARCHER:**

Discovery Networks Professor of Science and Natural History Filmmaking  
Program Director,  
MFA Program in Science and Natural History Filmmaking  
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(406) 994-6227

Zach Gildersleeve  
Aver Ingenuity  
408 South 12th Avenue  
Bozeman, MT 59715

**COST OF PROJECT:**

**Attachment  
Scope of Work  
National Park Service  
IPM Plan and Training Video**

**PURPOSE**

- The purpose of this project is three-fold:
- Review existing museum Integrated Pest Management at Grant-Kohrs & revise the IPM to reflect resulting recommendations.
  - Establish the first Museum IPM Program for the Powell County Museum and Arts Foundation
  - Produce an educational video using these two sites as a case studies in the principles and implementation of IPM for circulation to regional museums.

**BACKGROUND**

GRKO is a 1,500 acre historic ranch with 89 historic structures, several housing exhibits or historically furnished period rooms. This site's existing Museum IPM Action Plan, written by a museum conservator, will benefit from review by an entomologist and expansion from just collections to other cultural resources. The basics of IPM have been studied and implemented. This plan will address the more difficult challenges of mitigating the presence of dermestid beetle larva around historic carpets, cluster flies by the thousands staining historic wallpaper, an increase in the presence of case-making and webbing moths, carpenter ants destroying the wall of an historic home from their channelling, pigeons roosting on historic structures and vehicles, and skunks burrowing through historic foundations.

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The museum community across the states of Montana and Wyoming do not have a museum IPM training video. By using these very different sites – one with federal funding and professionally trained staff and the other a non-profit with on-the-job training – museums at all levels can benefit learning the processes used in developing these specific IPM Plans.

The on-site visit will be recorded through video-taping and digital photography. These formats will be cooperatively edited to produce educational material for the museum audience.

**TASKS:**

**Task One:** The IPM specialist and video technician will first review introductory information about GRKO and PCMAF mission, resources and draft Museum IPM Plan.

## Task Agreement

- More detailed than required
- Ensure NPS copyright
- All project materials returned for archives



## Technology: increased efficiency



c. note location of traps on map slide 29 – old slide 29

## Monitoring: Traps

- The location of the trap where pests are captured can be noted to help show possible focal sources of infestations.
- Begin with traps spaced evenly throughout area.



d. [add explanation that this will lead to the monitoring record keeping that supports decision making and is explained later in the video

Agency	Aver Ingenuity, LLC	Writer	Zach Gildersleeve
Client	Grant Kohrs Ranch, et al	Producer	Will Lanier
Project #	GKR-2004-01	Director	Zach Gildersleeve
Title	"IPM for MT & WY Museums"	Art Director	
		Draft	GHR-01

<u>VIDEO</u>	<u>AUDIO</u>
<i>"INTEGRATED PEST MANAGEMENT (IPM) FOR MONTANA AND WYOMING MUSEUMS"</i>	
<p>OPENING SHOTS</p> <p>SCENIC SHOTS HIGHLIGHTING MONTANA AND UNIQUE MUSEUMS</p> <p>SPECIFIC AND UNIQUE COLLECTIONS AND RESOURCES</p>	<p>INTEGRATED PEST MANAGEMENT (IPM) IS A SOCIALLY ACCEPTABLE, ENVIRONMENTALLY RESPONSIBLE AND ECONOMICALLY PRACTICAL SCIENTIFIC PROCESS. THIS TRAINING VIDEO HAS BEEN PRODUCED TO ASSIST MONTANA AND WYOMING MUSEUM STAFF AND VOLUNTEERS WORKING TO PRESERVE MUSEUM COLLECTIONS AND HISTORIC RESOURCES.</p>
<p>INSIDE MUSEUM, EMPLOYEES OR VOLUNTEERS WORKING IPM PLAN</p> <p>DETAIL LARGE SIZE OF MUSEUMS AND RANCHES, AND SMALLER MUSEUMS, ETC.</p>	<p>ESTABLISHING A WELL CONCEIVED IPM PLAN CAN PROVIDE A VERY EFFECTIVE MEANS OF CONTROL FOR MANY YEARS TO COME, AND WILL PROVE TO BE A VERY PRACTICAL AND COST-EFFECTIVE ALTERNATIVE FOR MUSEUMS OF ALL SIZES, THE SMALLEST TO THE LARGEST. AN IPM PLAN CAN BE ADAPTED TO FIT YOUR MUSEUM'S UNIQUE MISSION, AND CAN BE AS SIMPLE OR COMPLEX AS TIME AND RESOURCES PERMIT.</p>



# 1. Degree Day vs Calendar Day

	JAN	JAN	JAN	JAN	FEB	FEB	FEB	FEB	MAR	MAR	MAR
	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 1	WEEK 2	WEEK 3
LIGHT											
CHECK SENSITIVE OBJECTS ON EXHIBIT		X									
UV FILTER CHECK		X									
BLUE FADE CARDS											
T/RH											
HS1 BASEMENT DEHUMIDIFIER											
MOVE T/RH EQUIP											
DOWNLOAD DATALOGGERS											
CHECK SILICA GEL			X								
CALIBRATE HYGROS									X		
IPM											
SNAP TRAPS		X		X		X		X		X	
STICKY TRAPS				CHANGE				X			
VACUUM HS1 HISTORIC CARPET EDGES				X				X			

[http://cutworm.org/cutworm/degree\\_days/](http://cutworm.org/cutworm/degree_days/)

Base Temperature:      Celsius Fahrenheit

Start Date:

End Date:

Plain Text Comma Separated Values

[Probability of DD occurrence by Calendar Date](#)

Submit Query

## 2. Reactive Monitoring & Time-Saving Techniques



### 3. Targeted Pest Control





## 4. Attract flies with light away from exhibit areas



5. Small museum introduced to concepts of IPM



6. Over 100 training DVDs to distribute



7. On the web

<http://scarab.msu.montana.edu/IPMMuseum/>

# Benefits & Lessons Learned

- Partnerships developed
- DVD format
- Faculty
- CESU agreement



## Rocky Mountains

### Cooperative Ecosystem Studies Unit

