BENTON COUNTY, OREGON

Agriculture and Wildlife Protection Program Summary Report 2017 - 2019

Livestock guardian puppy and sheep | Louise Liebenberg photo | www.grazerie.com

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1. Executive Summary

In June 2017, the Benton County Budget Committee approved $45,000 for the Agriculture and Wildlife Protection Program (AWPP), a two-year pilot program to encourage the proactive use of non-lethal animal damage deterrents to prevent conflicts with wildlife.

This 2017-2019 program report summarizes (1) educational outreach activities, (2) the reimbursement grant program, (3) the effectiveness of non-lethal wildlife deterrents used by program participants, and (4) the level of satisfaction with the Agriculture and Wildlife Protection Program.

Educational outreach activities included a website, two press releases, two magazine articles, a public presentation, a workshop, a conference session, and three tabling events. The educational outreach program also contributed $3,000 toward the installation of a beaver pond leveler on Dunawi Creek. The device was installed as a demonstration project and to help reduce flooding of 53rd Street near the Willamette Pacific Railroad overpass.

The AWPP awarded $35,363 in reimbursement grant funds to eight Benton County farms for the purchase of wildlife-friendly animal damage deterrents to prevent conflicts with wildlife. Awards were made based upon the applicant's philosophy of animal damage control and the likely effectiveness of the proposed non-lethal deterrents project plan. Amounts awarded ranged from $2,621 to the maximum allowed of $5,000.

Four of the farms were located in Philomath, two in Corvallis, one in Alsea, and one in Blodgett. The farms ranged in size from 4 to 102 acres. Farmers had experience ranging from 0 to 15 years. Four of the farms had used non-selective lethal animal damage control methods in previous years. All grant recipients agreed to not use traps, snares, calling-and-shooting, or poisons for the next three years as part of the grant application process.

Grant recipients proposed to protect a variety of livestock and crops. Sheep and goats were the most common livestock/crop proposed for protection. Expected wildlife conflict species included carnivores, herbivores, domestic dogs, birds of prey, wildfowl, and songbirds. Coyotes and cougars were the most common expected wildlife conflict species identified by grant recipients.

Two farms awarded grants did not submit reimbursement claim forms or required year-end project evaluation reports and did not respond to inquiries from county officials. After approximately one year, all six farms that participated in the grant program experienced little or no crop or livestock losses using non-lethal deterrents. Record keeping forms indicate that cougars, coyotes, and other conflict species were often present during the reporting period. The four farms that had previously used lethal animal damage control and experienced crop and livestock losses in previous years experienced no losses when using only non-lethal deterrents. Additional yearly reports will be necessary to determine the long term success of the program.

Grant participants used a wide variety of non-lethal wildlife deterrents including livestock guardian animals, electrified fencing, electronic scare devices, and protective housing to protect their crops and livestock. All grant participants were highly satisfied (94%) or satisfied (6%) with the non-lethal methods and tools they selected. Program participants were also highly satisfied (72%) or satisfied (28%) with the individual Agriculture and Wildlife Protection Program elements they made use of.

Overall, program participants were highly satisfied (83%) or satisfied (17%) with the Agriculture and Wildlife Protection Program and all participants said they would apply again for a wildlife deterrents grant and would recommend the grant program to other farmers.

2. Introduction

In June 2017, the Benton County Budget Committee approved $45,000 for the Agriculture and Wildlife Protection Program (AWPP), a two-year pilot program to encourage the proactive use of non-lethal animal damage deterrents in an effort to foster the coexistence of agriculture and wildlife in Benton County.

The AWPP funds (1) educational outreach and expert consultation services and (2) a merit-based, cost share, reimbursement grant program. Agricultural operations in Benton County that wish to prevent conflicts with wildlife may qualify for reimbursement grant funds for the purchase of proactive non-lethal wildlife deterrents to protect livestock and crops.

This community-based program is funded by Benton County and managed by county officials in partnership with citizen volunteers and representatives from local agricultural and wildlife organizations.

Education and consultation services are provided by Benton County, Oregon State University Extension Service, Chintimini Wildlife Center, and Program Advisors. The Program Advisors include national experts in ranching with wildlife, predator ecology, and human-carnivore conflict.

3. Program Goals

The goals of the Benton County Agriculture and Wildlife Protection Program are to:

- Protect livestock, crops and property while coexisting with wildlife;
- Provide an opportunity for use of non-lethal animal damage deterrents to prevent conflicts with wildlife;
- Educate farmers and the community about wildlife conflicts and non-lethal methods to avoid conflicts;
- Build a collaborative relationship between the farming and wildlife conservation communities and Benton County government around common goals.

The AWPP does not evaluate or make recommendations on everyday animal husbandry practices, farm animal welfare, wildlife habitat, or land use.

Livestock guardian donkey Florencia, Grassward Dairy.

4. Program Timeline

July 1, 2017	Program Funded for the 2017-2019 Biennium
September 2017	Task Group formed
Sep 2017 - Apr 2018	Task Group meets monthly to develop program documents and website, organize education and outreach events, and review grant applications and select recipients
February 1, 2018	Publish website and announce grant program
February 24, 2018	OSU Small Farms Conference information table
March 17, 2018	Farming with Wildlife Workshop
April 2018	"Using Coyotes to Protect Livestock. Wait. What?" published, Oregon Small Farm News
April 4, 2018	Marys River Grange presentation
April 15, 2018	Grant application deadline
April 30, 2018	Notification of grant awards
July 2018	"Alternative Animal Damage Program Takes Root" published, Growing Newsletter
Oct 2018 - Mar 2019	Conduct visits to non-lethal deterrents project sites
November 12, 2018	OSU Science Pub information table
January 17, 2019	Installation of beaver pond leveler on Dunawi Creek near 53rd Street
January 31, 2019	Project Evaluation Reports and Record Keeping Forms due
February 23, 2019	OSU Small Farms Conference Ranching with Wildlife session and information table

5. Educational Outreach

During the 2017-2019 pilot phase, the AWPP allocated approximately $10,000 for the educational outreach program. The educational outreach program provides educational information in the form of websites, brochures, press releases, and occasional public presentations and training workshops on wildlife conflict prevention. The AWPP website can be found at www.co.benton.or.us/awpp.

Consultation services on the selection and use of non-lethal wildlife deterrents are provided to agricultural operations in Benton County that are anticipating or have experienced conflicts with wildlife.

Education and consultation services are provided by Benton County, Oregon State University Extension Service, Chintimini Wildlife Center, and Program Advisors. The Program Advisors include experts in ranching with wildlife, predator ecology, and human-carnivore conflict.

Educational outreach and consultation services activities in 2018 and 2019 included a website, two press releases, two magazine articles, a public presentation, a workshop, a conference session, and three tabling events.

The program also contributed $3,000 toward the installation of a beaver pond leveler on Dunawi Creek. The device was installed as a demonstration project and to help reduce flooding of 53rd Street near the Willamette Pacific Railroad overpass. The Benton County Public Works Road Fund contributed $500 toward the installation of the device. The pond leveler was installed by Jakob Shockey of Beaver State Wildlife Solutions with assistance from citizen volunteers.

Outlet pipe of beaver pond leveler installed on Dunawi Creek to help reduce flooding of 53rd Street.

6. Grant Program

The AWPP grant program required an application for non-lethal wildlife deterrent reimbursement funds. All grant applications were evaluated by citizen volunteers and reviewed by county officials. Successful applicants were notified of the amount awarded. Successful applicants purchased approved deterrents and submitted reimbursement request forms and receipts to the county office. Checks for up to the amount awarded in the name of the applicant were issued. Successful applicants were required to keep project records, report conflicts, evaluate their project, and abide by program requirements.

6.1 Who was Eligible for Grant Funding?

Agricultural operations in Benton County, of any size, on leased or owned land, that were anticipating or experienced conflicts with wildlife were eligible to apply for reimbursement funds. Commercial and hobby or lifestyle farms were eligible to apply. Though non-lethal deterrents projects were required to be located in Benton County, it was not necessary to be a resident of Benton County to apply. Applicants agreed to raise livestock or crops at their non-lethal deterrents project location(s) for at least one year to be eligible to receive grant funds.

6.2 What was Eligible for Grant Funding?

Non-lethal wildlife deterrent equipment, devices, and housing which proactively protect livestock and /or crops were eligible for funding. Examples of non-lethal deterrents included, but were not limited to:

guardian animals, certain types of fencing, birthing sheds, visual and acoustic scare devices, and flow devices such as beaver pond levelers.

Non-selective lethal wildlife control methods such as traps, snares, calling-and-shooting, denning (killing animals in their burrows or dens – usually with poisons), or poisons were **not** reimbursable, or allowed, under the program.

Reimbursement funds could only be applied to new purchases made after the grant award date. Retroactive costs or purchases made prior to the grant award date were not allowed.

6.3 How Much Grant Funding was Available?

During the 2017-2019 pilot phase, the AWPP allocated approximately $35,000 for the cost share reimbursement grant program. Each applicant could request up to $5,000 in reimbursement grant funds.

6.4 Selecting Non-Lethal Methods and Tools

Applicants selected methods they believed would work best for their particular operation and described how they would be used in their plan for conflict prevention in the grant application. The specific technique(s) employed depended on the wildlife species present, history of conflicts, type and size of the operation, site characteristics, cost, and available resources. A single non-lethal method can rarely be used successfully in most situations, so it was important to review all methods and match several tools to each specific situation and vary their use frequently. Non-lethal deterrents work best if used before conflicts with wildlife occur. Once wildlife has learned to exploit an unprotected resource, it can be challenging to prevent future conflict.

6.5 Grant Application Evaluation and Selection Process

All grant applications were evaluated by citizen volunteers and representatives from local agricultural and wildlife organizations using a blind review process. Grant awards were based on responses to questions in the reimbursement grant application form. In general, awards were made based on agreement between the applicant's philosophy of animal damage control and goals of the AWPP, the likely effectiveness of the proposed non-lethal deterrents project plan, and availability of funds. Other areas evaluated included the applicant's recognition of potential challenges, expectations for deterrents, conflict history, and commitment to using non-lethal deterrents to coexist with wildlife.

A simple checklist-style scoring system was developed as a tool to quickly score and rank applications for comparison. The scoring system was based on, and directly linked to, each of the questions found in the grant application form. One point was awarded for each key element in the application. A key element is one that indicates the proposed non-lethal deterrents project plan will be effective. Key elements were summed to obtain a total score for the application. An application with more key elements had a higher total score and received a higher ranking than an application with fewer key elements. A high-ranking application was more likely to be successful than a low-ranking application. There was no minimum score for an application to receive grant funding. Though applications were scored and ranked, the scoring system did not need to be used during this grant cycle since there was sufficient money to fund all eligible Project Plans.

6.6 Grant Program Requirements

Reimbursement Funds: The grant funds received can only be used for the purchase of non-lethal deterrents to prevent wildlife-caused damage to, or loss of, livestock or crops.

Cost share: Grant recipients agree to make an in-kind (non-cash) contribution of at least 25% of the requested grant amount over the three-year period following the award of the grant. In-kind contributions could include, but are not limited to, labor costs associated with the installation and upkeep of deterrent methods and devices, care and feeding of guardian animals, and labor costs for constructing protective housing that prevent conflicts with wildlife.

Record Keeping: Grant recipients agree to maintain a detailed record of their non-lethal deterrents project operations for three years from the date the grant is awarded. The records will include descriptions of any conflicts with wildlife which were prevented or resulted in damage or loss.

Reporting: Grant recipients agree to immediately report any damage to, or loss of, livestock or crops resulting from a failure of the deterrents used. Reports should be made to the AWPP county contact so that consultation with wildlife conflict experts is initiated and adjustments to deterrents can be discussed.

Project Evaluation: Grant recipients agree to submit an annual Project Evaluation Report for three years following the award of the grant. The Project Evaluation Report evaluates the effectiveness of the non-lethal deterrents project over the previous calendar year ending on December 31. This information will be used to identify effective methods and tools and evaluate satisfaction with the AWPP.

Restrictions: Grant recipients may not use non-selective lethal wildlife control methods such as traps, snares, calling-and-shooting, denning (killing animals in their burrows or dens), or poisons anywhere on the property where the funded non-lethal deterrents project will be implemented for three years following the award of the grant. Non-selective lethal methods can kill non-target species and non-offending individuals. Indiscriminate killing may have unintended consequences.

Attractant Removal: Grant recipients agree to remove all wildlife attractants at the project site including excess animal feeds, afterbirth, and sick, injured, or dead livestock.

Special Situations or Exceptions: Targeted killing (e.g. shooting) of an offending individual wild animal is allowed under the program but only when the animal is caught in the act of biting, wounding, killing or chasing healthy livestock. Shooting wildlife that respond to calls (calling-and-shooting) is not allowed under the program. Wild animals engaged in scavenging dead or dying livestock may not be killed.

Site Visits: County staff with AWPP citizen volunteers may schedule site visits to farm properties or other locations where non-lethal deterrents project activities are conducted.

Note: Any use of lethal control must fall within the rules and regulations set forth by the Oregon Department of Fish and Wildlife. Threats to human health and safety involving wildlife should be directed to the Oregon Department of Fish and Wildlife.

6.7 Grant Program Results

The AWPP awarded $35,363 in reimbursement grant funds to eight Benton County farms for the purchase of wildlife-friendly animal damage deterrents to prevent conflicts with wildlife. Awards were made based upon the applicant's philosophy of animal damage control and the likely effectiveness of the proposed non-lethal deterrents project plan. Amounts awarded ranged from $2,621 to the maximum allowed of $5,000.

Four of the farms were located in Philomath, two in Corvallis, one in Alsea, and one in Blodgett. The farms ranged in size from 4 to 102 acres. Farmers had experience ranging from 0 to 15 years. Four of the farms had used non-selective lethal animal damage control methods in previous years (Table 1). All grant recipients agreed to not use traps, snares, calling-and-shooting, or poisons for the next three years as part of the grant application process.

Table 1. Characteristics of eight farms awarded $35,363 in reimbursement grants.

Farm	Location	Size (Acres)	Farming (Years)	Protecting	Formerly Used Lethal Methods?	Funded Amount
1	Corvallis	4	0	Livestock and Crops	New Farm	$4,261
2	Philomath	50	5	Livestock	No	$5,000
3	Philomath	10	12	Livestock	Yes	$5,000
4	Alsea	67	15	Livestock	Yes	$2,621
5	Blodgett	52	7	Livestock	Yes	$3,713
6	Philomath	102	4	Livestock and Crops	Yes	$4,768
7	Corvallis	7	2	Livestock and Crops	No	$5,000
8	Philomath	23	4	Crops	No	$5,000

Livestock guardian dogs Shasta and Lassen, Red Bird Acres Farm.

Grant recipients proposed to protect a variety of livestock and crops (Table 2). Sheep and goats were the most common livestock/crop proposed for protection. Expected wildlife conflict species included carnivores, herbivores, domestic dogs, birds of prey, wildfowl, and songbirds. Cougars and coyotes were the most common wildlife conflict species identified by grant recipients (Table 3).

Table 2. Livestock and crops proposed for protection at eight farms awarded reimbursement grants.

Livestock / Crop	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5	Farm 6	Farm 7	Farm 8
Sheep	x		x	x		x	x	
Goats	x		x		x	x		
Pigs		x						
Chickens	x	x				x		
Turkeys		x						
Hazelnuts						x		
Vegetables	x							
Fodder Crop					x			
Specialty Cut Flowers							x	
Industrial Hemp								x

Table 3. Expected wildlife conflict species at eight farms awarded reimbursement grants.

Conflict Species	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5	Farm 6	Farm 7	Farm 8
Cougar	x		x	x	x	x	x	x
Coyote	x	x	x		x	x		
Bobcat	x			x		x	x	
Fox	x	x						
Black Bear			x					
Dog			x					
Raccoon		x		x				
Skunk		x						
Elk and/or Deer	x				x		x	x
Rabbit	x							
Hawk and/or Owl		x						
Steller's Jay						x		
Wild Turkey								x

Two farms which were awarded grants (Farms 7 and 8) did not submit reimbursement claim forms or required year-end project evaluation reports and did not respond to inquiries from county officials. Six of the eight grant recipients (Farms 1-6) fully participated in the program by purchasing and installing wildlife deterrents and submitting year-end project evaluation reports. Information in Tables 4-7 below refers to these six farms.

During the first year of implementation, all six farms that participated in the grant program experienced little or no crop or livestock losses using non-lethal deterrents. Record keeping forms indicate that cougars, coyotes, and other conflict species were often present during the reporting period. Overall, only six beets and one chicken were lost after all non-lethal deterrents were installed. The four farms (Farms 3-6) that had previously used lethal animal damage control and experienced crop and livestock losses in previous years experienced no losses when using only non-lethal deterrents (Table 4).

Table 4. Crop and livestock losses three years prior to (2015-2017) and after (2018) non-lethal deterrents project plans were implemented. Farms 3-6 used lethal methods prior to 2018.

Farm	Location	2015	2016	2017	2018
1	Corvallis	Not Farming	Not Farming	Not Farming	6 Beets
2	Philomath	> 150 Fowl	10-20 Fowl	5 Fowl [1]	1 Fowl [2]
3	Philomath	6 Fowl	3 Goats, 12 Fowl	3 Fowl	No Losses
4	Alsea	3 Fowl	2 Fowl	5 Fowl	No Losses
5	Blodgett	2 Sheep	No Losses	10 Fowl, ½ acre Root Crops	No Losses
6	Philomath	No Losses	14 Fowl	2 Goats, 4.6 acres Hazelnuts	No Losses

[1] Started using first livestock guardian dog in 2017.
[2] Four chickens were killed by hawk and/or owl before all non-lethal deterrents were installed. A total of 2,400 chickens were raised in 2018.

Livestock guardian dog Angel and ram Diego, Silvernail Farm and Orchard.

Grant participants used a wide variety of non-lethal wildlife deterrents including livestock guardian animals, electrified fencing, electronic scare devices, and protective housing to protect their crops and livestock. During the first year of implementation, all grant participants reported being highly satisfied (94%) or satisfied (6%) with the non-lethal methods and tools they selected (Table 5). Program participants also reported being highly satisfied (72%) or satisfied (28%) with the individual Agriculture and Wildlife Protection Program elements they made use of (Table 6).

Overall, program participants were highly satisfied (83%) or satisfied (17%) with the Agriculture and Wildlife Protection Program and all participants said they would apply again for a wildlife deterrents grant and would recommend the grant program to other farmers (Table 7).

Table 5. Level of satisfaction with non-lethal methods and tools used to protect crops and livestock (HS = Highly Satisfied, S = Satisfied, D = Dissatisfied, HD = Highly Dissatisfied).

Non-Lethal Deterrent	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5	Farm 6
Livestock Guardian Dog		HS				HS [1]
Livestock Guardian Donkey					HS [1]	
Portable Electric Fence	HS	HS		HS	S	HS
Woven Wire Fence	HS		HS			
Electrified Wire Fence				HS		HS
Protective Housing			HS			
Electronic Scare Device (Light)				HS		
Electronic Scare Device (Sound)				HS		HS
Mylar Flagging						HS
Non-Toxic Bird Deterrent Spray						HS

[1] Not purchased with AWPP grand funds

Sheep, electric fencing, and Nite Guard predator light, Leaping Lamb Farm.

Table 6. Level of satisfaction with individual Agriculture and Wildlife Protection Program elements. Blank cells indicate program elements that were not used by the program participant (HS = Highly Satisfied, S = Satisfied, D = Dissatisfied, HD = Highly Dissatisfied).

Program Element	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5	Farm 6
Educational Outreach	-	-	-	-	-	-
Weblinks in Application Form	S	HS		HS		HS
Weblinks on AWPP Website	S	HS		HS		HS
Farming with Wildlife Workshop		HS				
Small Farms Conference Table	HS			HS		
Ranching With Wildlife Brochure						
Consultation Services	-	-	-	-	-	-
AWPP Representatives	HS	HS		HS		HS
OSU Extension Service	HS	HS	HS	HS		
Chintimini Wildlife Center		HS				
Grant Program	-	-	-	-	-	-
Guidelines & Information Pages	HS	HS	HS	HS	S	S
Application Form	HS	HS	HS	HS	S	S
Record Keeping Form	HS	S	HS	HS	S	S
Project Evaluation Form	S	S	HS	HS	S	S
Amount of Financial Assistance	HS	HS	HS	HS	S	HS

Table 7. Overall level of satisfaction with the Agriculture and Wildlife Protection Program (HS = Highly Satisfied, S = Satisfied, D = Dissatisfied, HD = Highly Dissatisfied).

Question	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5	Farm 6
What was your overall level of satisfaction with the AWPP?	HS	HS	HS	HS	S	HS
Would you apply again for a wildlife deterrents grant?	Yes	Yes	Yes	Yes	Yes	Yes
Would you recommend the program to other farmers?	Yes	Yes	Yes	Yes	Yes	Yes

7. Reading List

7.1 Websites

AWPP Website: http://www.co.benton.or.us/awpp

Livestock-Predator Hub: http://rangelands.ucdavis.edu/predator-hub/current-research/

Farming with Carnivores Network: http://farmingwithcarnivoresnetwork.com/animal-husbandry/

Non-Lethal Solutions to Reduce Conflicts: https://tinyurl.com/y9eyed3h

The Encyclopedia of Animal Predators: https://www.jandohner.com/resources

Safeguarding Livestock: http://mountainlion.org/portalprotectlivestock.asp

Resolving Conflicts with Beaver: https://www.beaverinstitute.org/

7.2 Books

Dohner, J.V. 2017. The Encyclopedia of Animal Predators. Storey Publishing, North Adams, Massachusetts. https://www.amazon.com/Encyclopedia-Animal-Predators-Behaviors-Livestock/dp/1612127053

Goldfarb, B. 2018. Eager: The Surprising, Secret Life of Beavers and Why They Matter. Chelsea Green, White River Junction, Vermont. https://www.amazon.com/Eager-Surprising-Secret-Beavers-Matter/dp/160358739X

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7.3 Newspapers and Magazines

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Lies, Mitch. "Alternative Animal Damage Control Program Takes Root." *Growing Newsletter*, July-August 2018, https://tinyurl.com/y598cgs7

7.4 Scientific Journals

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http://tinyurl.com/y2bupamd

Shivik, J. A., A. Treves, P. Callahan. 2003. Non-lethal techniques for managing predation: primary and secondary repellents. Conservation Biology 17:1531-37.
http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1266&context=icwdm_usdanwrc

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