

The Status of the Virginia Cooperative Coyote Damage Control Program - Fiscal Year 2013

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EXECUTIVE SUMMARY

USDA-APHIS-Wildlife Services (WS) provided direct control services to 160 livestock farms in 27 counties in federal fiscal year (FY) 2013. During FY2013, 205 sheep, 48 calves, and 30 goats were reported and verified killed by coyotes in Virginia on these 160 farms. This level represents a 21% increase in reported sheep predation and a 128% increase in reported calf predation from FY2012. In FY2013, the average number of sheep killed per farm by coyotes was 2.4. Preventive control was conducted on 87 livestock farms with historic coyote predation. WS removed coyotes on these farms before livestock depredation occurred, and these farms had no losses in FY2013. Corrective control was conducted on 73 livestock farms to remove coyotes killing livestock. In FY2013, WS removed 339 coyotes on farms to stop or prevent coyote predation on livestock.

Funding for the Virginia Cooperative Coyote Damage Control program improved during FY2013. In the beginning of federal FY2013, state funding for the program was at \$120,000. However, the Virginia General Assembly added \$72,525 to provide direct control services statewide. Currently, state and federal matching funds now provide an equivalent of 5.2 staff years. Six employees stationed in Augusta, Franklin, Highland, Montgomery, Russell, and Chesterfield counties work part-time to resolve coyote predation and also work on other wildlife damage management projects as needed to maintain their positions.

We anticipate that demand for livestock protection services will increase due to the development of statewide program availability and to observed increases in coyote population indices and reported predation.

INTRODUCTION

The United States Department of Agriculture - Animal and Plant Health Inspection Service - Wildlife Services (WS) Program serves Virginia livestock producers suffering coyote predation on livestock by providing technical assistance, direct control, and education. This status report summarizes WS' accomplishments for the 2013 federal fiscal year.

Coyote depredations were recognized as a potentially serious threat to Virginia's livestock industries in the early 1980's (Figure 1). As a result, the Virginia Cooperative Coyote Damage Control Program (VCCDCP) was created in 1990 by a Cooperative Service Agreement between the Virginia Department of Agriculture and Consumer Services (VDACS) and WS. The VCCDCP is funded by sheep producers, state, and federal funding (Table 1). The program provides technical and operational assistance necessary for identifying, controlling, and abating coyote predation to livestock.

The VCCDCP uses and recommends an Integrated Predation Management (IPM) approach for solving livestock predation problems. This approach to predation management uses improved husbandry practices, predator resistant fencing, predator frightening devices, livestock guardian animals, and predator removal. The implementation of IPM on Virginia farms was accomplished through technical assistance, educational programs, and operational programs.

Livestock Losses From Coyote Predation (FY 1992-2013)



Figure 1. Total livestock losses to coyotes reported to Wildlife Services from 1992-2013.

Table 1. Sources of funding for the Virginia Cooperative Coyote Damage Control Program in a sampling of Federal Fiscal Years (FY) 2004, 2006, 2008, 2011, 2012, and 2013 (October 1 - September 30).

Source	FY2004	FY2006	FY2008	FY2011	FY2012	FY2013
VDACS	\$85,000	\$120,000	\$120,000	\$80,000	\$120,000	\$192,525
VSIB	\$15,300	\$4,000	\$4,000	\$5,000	\$5,000	\$5,000
USDA-WS	\$121,000	\$158,000	\$164,000	\$164,000	\$164,000	\$192,525
Total	\$221,300	\$282,000	\$288,000	\$249,000	\$289,000	\$390,050

PROGRAM ACCOMPLISHMENTS

Technical Assistance

Technical assistance was provided to producers statewide through personal consultations on the farm, written/telephone consultations, and educational programs and exhibits. WS distributed hundreds of leaflets to producers, loaned videos on using guard animals, provided information to implement non-lethal and lethal methods, and evaluated predator-killed livestock to identify the predator.

WS conducted 25 educational programs during FY2013 to educate livestock producers and the public about coyote ecology and coyote damage management. These educational programs were attended by 1549 people, and several hundred informational leaflets about livestock protection were distributed at these programs (Table 2).

Table 2. Educational programs presented and meetings attended by Wildlife Services personnel under the Virginia Cooperative Coyote Damage Control Program in FY2013.

<u>Requests/Cooperator/Organizations/Governments</u>	<u># of Participants</u>
Middlebrook Livestock 4-H Club	107
Northern Virginia FFA Rally	84
Highland Animal 4-H Club	21
Highland Annual Kids Outdoor Event	164
Newcomers Club of Greater Charlottesville	90
New River Valley area Farm Bureau Predation Workshop	53
Wheelin Sportsmen with Disabilities	57
Virginia Trappers Association	62
Izaak Walton League Winchester Chapter	52
Buckingham County Farm Bureau	48
Shenandoah County Extension	80
Virginia Farm Bureau Annual Convention	65
Virginia Tech WDM Students	25
Loudoun Sheep Producers	20
Virginia Farm Bureau Board meeting, Virginia Tech	35
Carroll and Grayson County Farm Bureau	50
Giles County Beef Field Day	30
Small Family Farm Show, Danville	35
Henry County farmers group	8
Franklin County Ag. Students	9
National Wild Turkey Federation coyote seminar	120
National Wild Turkey Federation Jakes Day event	80
Franklin County Farm and Dairy Day	241
Chesterfield County Extension	4
Powhatan County Farm Bureau	9
Total for FY2013	1549

Direct Control Services

During FY2013, the VCCDCP provided direct control services to 160 livestock producers reporting livestock losses to predation or livestock producers with historic losses. WS provided direct control services to 86 sheep farms, 68 cattle farms, and 6 goat farms in FY2013.

The VCCDCP implements preventive control to remove coyotes before losses occur to minimize

overall livestock losses to predators. Preventive control is implemented primarily from January through April on farms with historic predation. Preventive control strategies remove territorial coyotes before pups are born, which decreases the predatory behavior of coyotes during the lambing season (Wagner and Conover 1999). Of the 160 livestock producers assisted, 87 farms with historic coyote predation losses had coyotes removed to prevent predation. Of the farms receiving preventive control, 41 were sheep farms, 44 cattle farms, and 2 were goat farms. These farms had no livestock killed by predators in FY2013.

Corrective control is the implementation of coyote removal methods after the livestock producer reports losses. These losses can and do occur in all months of the year. Corrective control was implemented at 73 farms to stop chronic coyote predation on livestock in FY2013 (Table 3).

Table 3. Livestock deprecations reported to, or verified by Wildlife Services on farms receiving assistance from the Virginia Cooperative Coyote Damage Control Program in FY2013 and FY2012.

<u>Resources</u>	<u>Total livestock killed by coyotes, FY2013</u>	<u>Total livestock killed by coyotes, FY2012</u>	<u>No. of farms reporting losses, FY2013</u>	<u>No. of farms reporting losses, FY2012</u>
Sheep	205	170	45	49
Cattle	48	21	24	20
Goats	30	45	4	2

Methods used by WS

Integrated Predation Management is the use of any or all practical and legal methods simultaneously or sequentially to prevent or reduce predation. Livestock producers are better able to implement non-lethal methods such as fencing, shed lambing, and other husbandry practices. Livestock producers can implement some lethal methods. However, they request assistance from WS when the predation losses are overwhelming or when preventive strategies are appropriate.

Wildlife Services implements a combination of lethal methods to alleviate predation on livestock at the livestock producers' request (Table 4). Coyotes may be removed by WS using snares, foot-hold traps, shooting, calling and shooting, decoying with dogs and shooting, M-44 sodium cyanide ejectors, or Livestock Protection Collars.

M-44's are the primary lethal method used west of the Blue Ridge because of efficiency and effectiveness at stopping or preventing predation. On average, 65-70% of coyotes killed by WS are taken each year with M-44's (Table 4). Also, M-44's are better able to continuously work during bad weather and freezing and thawing soil conditions, which can disable traps and snares.

Where appropriate, WS uses non-lethal methods to resolve livestock predation. Infrequently, strobe-sirens, a non-lethal method, are used until lambs are moved to market or lethal methods

can be implemented. WS also assists in the placement of guard animals to protect livestock.

Table 4. Lethal methods used by Wildlife Services and coyotes removed to protect livestock from predation in Virginia in FY2013.

<u>Method used</u>	<u>Number of coyotes captured per method</u>
M-44	220 (65%)
Snares	100 (29%)
Foot-hold traps	12 (4%)
Livestock Protection Collar	1 (<1%)
Calling/shooting	8 (2%)

Sheep

The average number of sheep killed by coyotes per sheep producer receiving WS assistance during FY2013 was 2.4 sheep per farm (Table 5). This rate represents a 21% increase in overall sheep predation from FY2012. Although coyote predation to sheep is increasing (Figure 2), beneficial impacts to individual farms receiving assistance are realized (Table 5).

The average number of sheep killed by coyotes per participating farm has fluctuated each year. Fluctuations of coyote predation from year to year have human and biological causes. In addition to funding changes, sheep and lamb inventories in Virginia have increased on average in recent years further increasing the likelihood of predation. Some producers lose many sheep to coyote predation before contacting WS to request assistance. Also, coyote predation can be difficult to stop due to irregular occurrence of predation and the ability of some coyotes to avoid capture. Furthermore, coyote populations continue to show increasing trends statewide (VDGIF Bowhunter Survey 2013, VDGIF Hunter Harvest Survey 2009-2010, VDGIF Pelt Harvest Survey 2012-2013).

Coyote and Dog Predation to Sheep

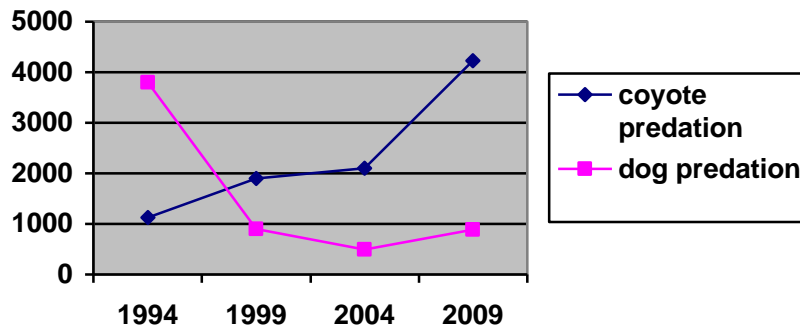


Figure 2. National Agricultural Statistics Service (NASS) estimates of sheep losses from coyotes and dogs in Virginia.

Livestock Losses From Coyote Predation (FY 2013)

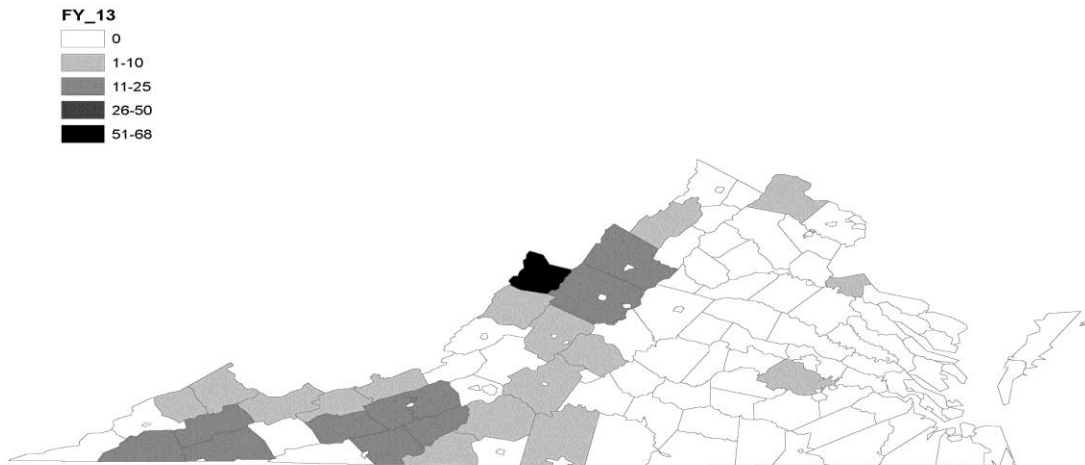


Figure 3. Livestock losses to coyotes reported to Wildlife Services in FY2013.

Table 5. Number of sheep, cattle, and goats killed by coyotes per livestock producer on farms receiving assistance from Wildlife Services 1993-2013.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Sheep killed	404	363	191	402	250	229	448	337	187	234	142	288	433	242	194	296	294	348	461	170	205
Sheep producers assisted	24	41	28	56	49	72	84	67	83	113	86	91	100	113	95	110	88	81	89	86	86
Sheep killed per farm	16.8	8.8	6.8	7.2	5.1	3.2	5.3	5.0	2.3	2.1	1.7	3.2	4.3	2.1	2.0	2.7	3.3	4.2	5.2	2.0	2.4
Goats killed per farm	-	-	-	-	-	-	-	9.0	6.0	6.3	7.3	2.4	3.1	6.1	2.2	3.4	2.5	1.7	1.7	15	5
Cattle killed per farm	-	-	-	-	-	-	1.4	1.7	0.3	0.6	0.4	0.6	1.2	.53	.37	.27	.39	.47	.66	.34	.71
Number of coyotes removed	19	56	37	75	115	129	284	204	231	394	220	403	315	387	364	454	384	298	487	368	339

Goats

Goat losses were reported in Buchanan, Carroll, Loudoun, Montgomery, Pulaski, and Tazewell Counties in FY2013. One farm in Washington County reported most of the damage which occurred prior to WS assistance.

Cattle

Twenty-four (35%) of the 68 cattle farms assisted in FY2013 received corrective control. Forty-four (65%) of the cattle farms assisted received preventive control because cattle producers felt coyotes were a threat, coyotes were seen harassing or chasing cattle, or coyotes killed cattle, sheep, or goats on adjacent property.

Calf predation by coyotes is a growing concern among producers statewide. The National Agricultural Statistics Survey (NASS) of cattle predator/death loss indicates an increasing number of cattle/calves killed by coyotes in Virginia, ranging from 700 cattle/calves in 1991, 900 cattle/calves in 1995, 1,100 cattle/calves in 2000, 2,300 cattle/calves in 2005, to 3864 cattle/calves in 2010 (Figure 4). A NASS survey of only WS clients reported 95 cattle killed by coyotes on 174 cattle farms in 1998 (NASS 1999).

The economic impact to the cattle industry from coyote predation is actually greater than the impact to the sheep industry. The value of cattle and calves lost to coyote predation in 2005 is estimated at \$1.7 million, whereas in 2004 the value of sheep lost to coyote predation was estimated at \$310,000. (NASS 2010, NASS 2005, NASS 2004)

Coyote and Dog Predation to Cattle

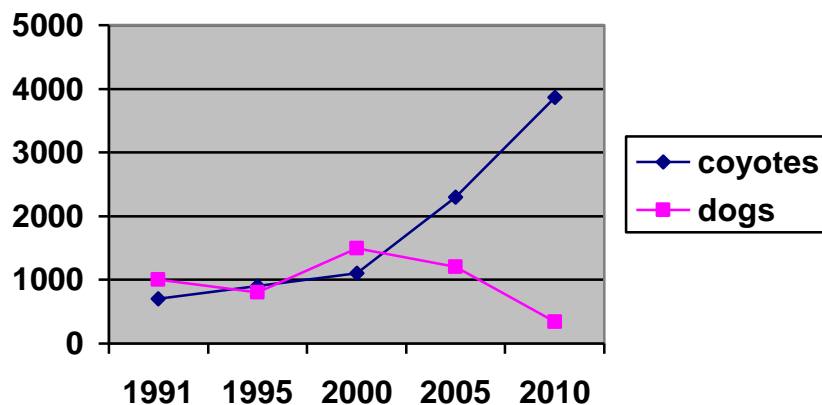


Figure 4. National Agricultural Statistics Service (NASS) estimates of cattle losses from coyotes

and dogs in Virginia.

Coyote populations

WS assisted 1170 different livestock producers from 1990-2013 to protect livestock from coyote predation. Coyote populations in Virginia continue to grow each year (Figures 5, 6, and 7), which results in more livestock predation on farms that historically never had coyote predation problems. In FY2013, an additional 49 new farms were assisted to protect livestock. Increases in coyote harvest have been documented by hunter and pelt harvest surveys from the Virginia Department of Game and Inland Fisheries (VDGIF) (Figures 6 and 7). The coyote harvest has increased from 1,295 in the 1993-94 hunting season to 24,449 in the 2008-2009 hunting season.

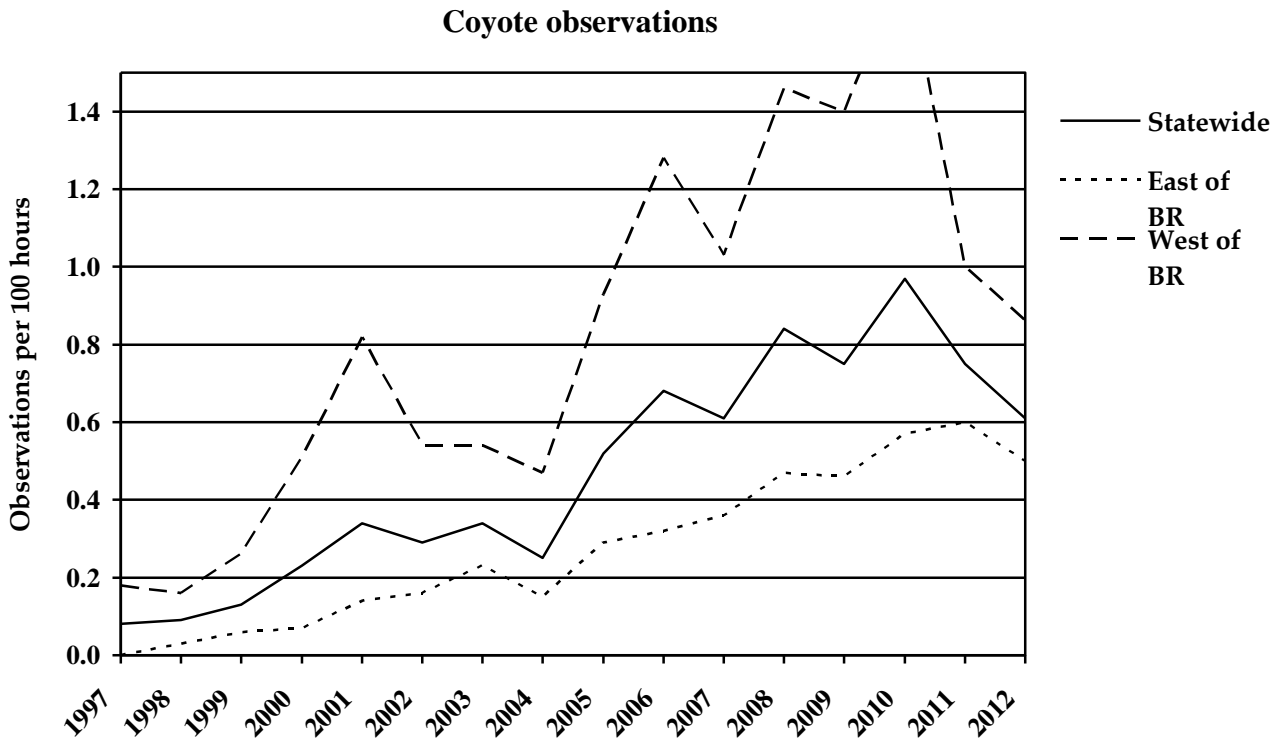


Figure 5. Coyotes observed (per 100 hours of hunting) by cooperating early archery hunters from 1997-2012 east and west of the Blue Ridge Mountains and statewide in Virginia (VDGIF Bowhunter Survey).

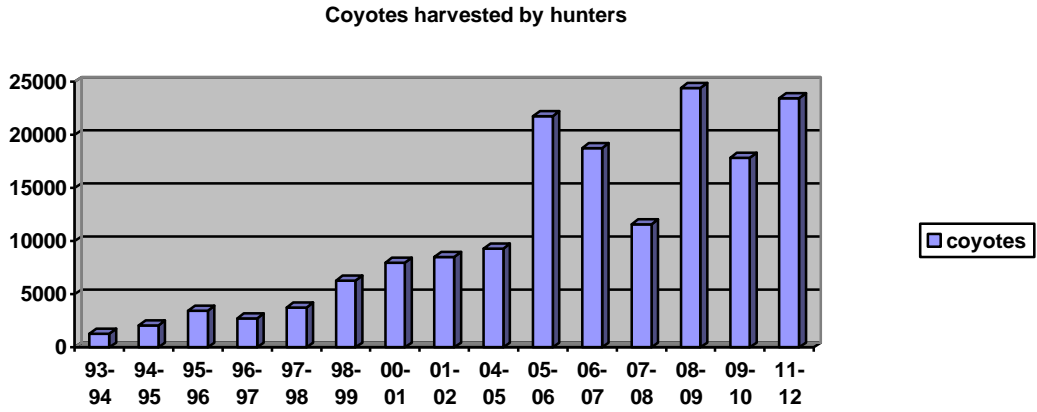


Figure 6. Number of coyotes harvested by hunters in Virginia during recent hunting seasons according to VDGIF hunter harvest surveys.

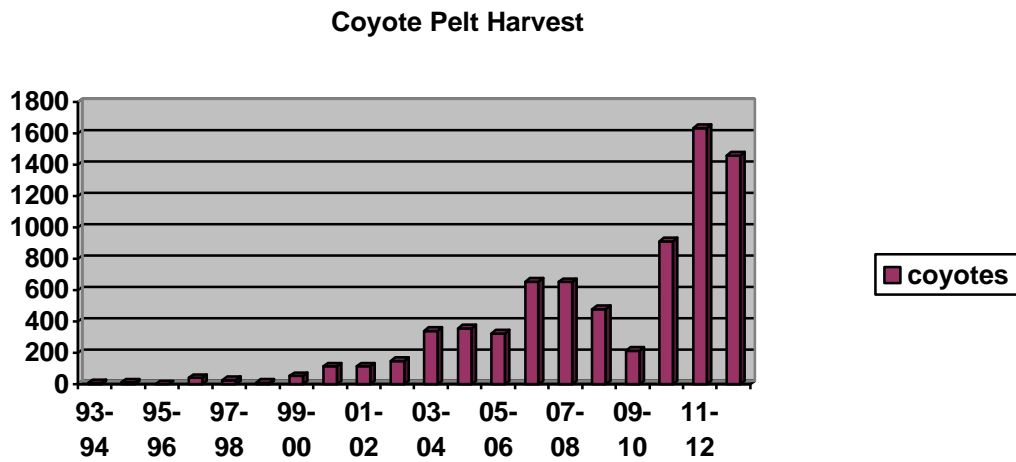


Figure 7. Number of coyote pelts harvested by hunters and trappers during recent hunting and trapping seasons according to VDGIF surveys.

BLACK VULTURE DAMAGE

Black vulture damage to livestock is common in Virginia and includes predation, injury, and harassment of livestock. Predation losses to livestock from black vultures usually occur during birth or shortly afterwards. In Virginia during FY2013, 40 calves, 1 cow, 1 adult sheep, 37 lambs, and 8 kid goats were reported killed by vultures. Fifty-three farms called to report conflicts, report predation, and seek assistance. WS provides technical and direct control assistance to farms requesting assistance with black vultures. Livestock producers are provided with details on how to reduce vulture conflicts which includes harassing vultures with firearms, removing dead livestock, and when necessary removing vultures by shooting. Livestock producers are encouraged to obtain migratory bird depredation permits if non-lethal methods are not resolving conflicts. These permits allow limited lethal take of black vultures to supplement non-lethal methods. Obtaining migratory bird depredation permits for vulture take begins with a call to WS and subsequent permit applications are made by the farmer along with a WS report. Applications are submitted to the U.S. Fish and Wildlife Service. A fee of \$100 is required annually.

PROGRAM SCOPE AND FUNDING

We anticipate that demand for livestock protection services statewide will increase based on observed levels in coyote population indices, reported predation, and expansion of direct control services statewide. Reports of coyote predation and sightings by livestock producers in central and eastern Virginia appear to be increasing and requests for services in those areas is occurring.

During most of FY2013, the WS program employed 5 part-time coyote specialists. An additional employee was hired in July. Federal funds, state funds (VDACS), and Virginia Sheep Industry Board funds provided salaries and operational expenses during FY2013 for approximately 5.2 staff years.

GOALS FOR FY2014

WS will continue to inform livestock producers on the status and availability of the program. WS will attempt to maintain and diversify funding for other wildlife management projects to maintain the critical infrastructure and current staffing level of 6 employees working part time on the program. WS will conduct outreach to update program participants on assistance available for vulture predation and other conflicts with migratory birds. WS will work with producer industry groups to develop strategies for assisting producers with livestock protection.

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