THE IMPORTANCE OF HUNTING AND THE SHOOTING SPORTS ON STATE, NATIONAL, AND GLOBAL ECONOMIES*

Authors: **Mark Damian Duda, Executive Director**
Martin Jones, Research Associate
Andrea Criscione, Research Associate
Amanda Ritchie, Research Associate
Responsive Management, Harrisonburg, VA/United States

There are many reasons hunting and sport shooting participation is important to the global economy. In America alone, 12.5 million Americans 16 years and older hunted in 2006 (U.S. Fish and Wildlife Service/U.S. Census Bureau, 2007), and almost 19 million participate in the shooting sports in any given year (National Sporting Goods Association, 2008). This large constituency infuses billions of dollars into the economy each year, and sportsmen's dollars are integral to game management, species protection, habitat conservation, and the U.S. economy as a whole. With an overall US$66 billion impact on the nation's economy (Southwick Associates, 2007), hunting and the shooting sports provide more than just a boost to the sportsman's quality of life, they support the economic needs for millions of people in the United States.

A closer look at one sportsman's expenditures illustrates the wide economic impact of hunting and demonstrates the far-reaching effect of recreational spending in the United States. Mr. R from a small town in rural Virginia is planning for the hunting season. He has been hunting almost every year since he was in his early teens on land behind his family's farm, where he has had a tree stand for over 15 years. This year, he plans to replace his tree stand with a newer, safer model. In anticipation, Mr. R makes his first trip to a local outfitter 30 miles away, where he purchases a ThermoLogic hunting jacket, a few hand warmers, a bottle of scent killer, and a buck-rut grunt call, and also prices several tree stand models he is considering. A week before the start of hunting season, Mr. R returns to the local outfitter and purchases the Ameristep Team Realtree Skyscraper Ladder Stand, Thinsulate thermal gloves, deer attractant, gun cleaning supplies, and a box of standard 150 grain jacketed shells for his Remington 600 Mohawk .308 to prepare for his weekend hunting trip.

Mr. R's purchases generate profit for the local retail stores, as well as the product manufacturers and suppliers headquartered in Pennsylvania, Michigan, and Nebraska. However, Mr. R's money extends far beyond his purchases at the local outfitter; it helps companies buy supplies and pay employees and funds manufacturing and delivery. Including what Mr. R spends on these various trips to the local outfitter and what he spends at the local gas station on snacks and fuel, Mr. R's expenditures quickly add up. Multiply these expenditures by 12.5 million hunters and 19 million sport shooters in the United States, and the major economic boost by sportsmen is clear. The money spent on hunting trips resonates nationally, from oilfield workers in the west to wheat growers in the plains, plus all of their employees and suppliers everywhere (Southwick Associates, 2002). The ripple effect of sportsmen's dollars has a significant impact on community economic development, game management, and wildlife and habitat conservation.

* The authors would like to thank Rob Southwick of Southwick Associates for providing economic information for this paper (see Southwick Associates, 2002, 2007).

Hunters Boost National and Local Economies in the United States

According to recent research (Southwick Associates, 2007), U.S. hunters spend US$24.7 billion in retail sales and generate US$9.2 billion in local, state, and federal tax revenue. In fact, sales in hunting and the shooting sport industry appear to be faring better in the declining U.S. economy than any other sport. According to a recently released report on the sporting goods market (National Sporting Goods Association, 2009), hunting and firearms equipment sales experienced the greatest percentage increase among equipment categories with sales exceeding US$1 billion, with a rise from US$3.9 billion in 2007 to US$4.6 billion in 2008. Although the overall sales of sporting footwear, clothing, and equipment fell 1% in 2008, the sale of hunting and firearms equipment increased by 16% (National Sporting Goods Association, 2009).

In addition to sales and tax revenue, hunters' expenditures contribute to US$20.9 billion in salaries, wages, and business owners' incomes; support 592,944 jobs nationwide; and have an overall US$66 billion economic impact in the United States (Southwick Associates, 2007). This *total multiplier effect* explains the total economic activity resulting from sportsmen's expenditures. The best way to explain this number is to reverse it. If people no longer spent money on hunting and fishing and did not spend these dollars elsewhere, state and U.S. economies would shrink by the amounts reported in the total multiplier effect. The impact on salaries, wages, and income include the total paychecks and business profits earned as result of sportsmen's expenditures. These go to employees and companies that directly support sportsmen and to people such as the accountant in Chicago whose client supplied food to restaurants that served sportsmen in Florida.

Table 1 presents the economic contributions from hunting, which includes the direct expenditures and the ripple effect through the economy of those direct expenditures. The estimates show that the hunting industry produces almost US$5 billion in federal taxes annually (Southwick Associates, 2007).

Table 1. Economic Contributions of Hunting to the U.S. Economy

State	Jobs	Retail Sales (US$)	Total Multiplier Effect (US$)	Salaries, Wages, and Income (US$)	State and Local Taxes (US$)	Federal Taxes (US$)
Alabama	17,487	$846,607,925	$1,388,634,035	$426,934,839	$82,708,487	$95,576,324
Alaska	2,020	$132,314,335	$188,610,428	$59,643,699	$13,593,169	$12,635,474
Arizona	4,788	$325,858,039	$554,551,807	$173,497,561	$30,995,547	$37,692,546
Arkansas	17,823	$877,430,173	$1,376,253,610	$391,642,245	$99,246,297	$99,550,595
California	13,774	$926,577,638	$1,645,120,235	$533,749,531	$123,535,170	$124,988,347
Colorado	9,258	$464,044,078	$817,261,886	$297,081,040	$51,568,940	$68,404,422
Connecticut	1,144	$70,104,010	$114,601,486	$39,177,572	$8,049,224	$10,980,062
Delaware	880	$63,837,799	$87,026,594	$29,855,196	$5,775,237	$6,556,529
Florida	10,313	$402,478,561	$702,684,027	$251,851,225	$43,599,095	$58,193,793
Georgia	14,714	$679,541,843	$1,128,226,211	$367,110,061	$82,118,364	$86,762,722
Hawaii	517	$29,533,971	$39,676,045	$13,539,833	$2,548,882	$2,792,950

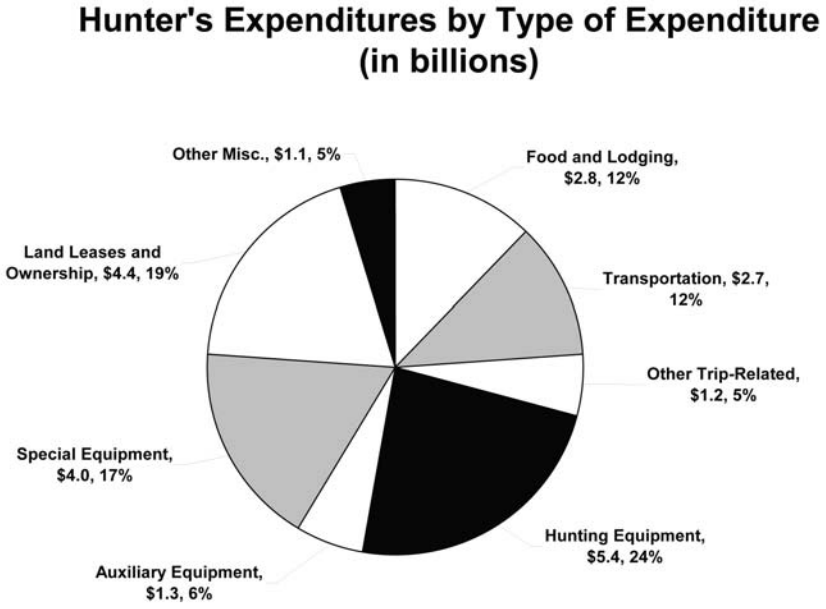
State	Jobs	Retail Sales (US$)	Total Multiplier Effect (US$)	Salaries, Wages, and Income (US$)	State and Local Taxes (US$)	Federal Taxes (US$)
Idaho	5,713	$284,030,006	$441,053,831	$159,210,324	$33,442,787	$32,319,322
Illinois	8,421	$388,881,335	$693,475,942	$236,920,109	$49,093,240	$57,675,177
Indiana	5,132	$265,048,066	$436,644,153	$138,573,361	$30,248,922	$32,601,862
Iowa	6,231	$299,398,609	$469,829,900	$150,787,736	$32,376,135	$33,847,420
Kansas	5,864	$270,981,258	$464,436,938	$142,771,519	$29,695,037	$32,210,464
Kentucky	8,400	$439,471,631	$694,427,486	$205,826,351	$52,596,675	$48,438,294
Louisiana	13,084	$594,435,590	$975,249,784	$306,067,276	$62,248,488	$62,343,675
Maine	4,509	$280,831,620	$367,315,113	$113,845,092	$30,418,808	$26,408,402
Maryland	4,450	$257,316,836	$424,917,873	$153,019,503	$32,890,971	$35,324,190
Massachusetts	1,284	$71,125,154	$121,140,373	$45,196,577	$8,148,282	$11,336,689
Michigan	19,560	$1,334,000,075	$2,296,402,842	$690,135,969	$153,506,053	$161,443,647
Minnesota	11,911	$637,270,173	$1,099.730,694	$353,609,923	$75,882,194	$86,158,974
Mississippi	12,094	$562,674,243	$863,586,448	$238,776,899	$65,771,581	$52,887,207
Missouri	24,505	$1,227,087,240	$2,085,985,187	$628,068,032	$147,006,353	$149,834,435
Montana	7,005	$405,817,077	$608,276,252	$161,217,991	$31,547,133	$37,975,030
Nebraska	5,163	$259,231,163	$417,304,662	$139,695,653	$31,515,062	$29,706,444
Nevada	1,854	$145,208,313	$223,547,853	$65,886,230	$11,717,320	$15,183,041
New Hampshire	1,546	$82,889,961	$132,378,626	$47,988,010	$8,600,731	$12,114,358
New Jersey	2,746	$193,411,974	$325,384,572	$109,864,454	$19,568,592	$28,099,285
New Mexico	3,740	$183,607,572	$300,648,082	$97,056,936	$20,259,416	$19,692,331
New York	11,438	$788,091,714	$1,340,205,905	$448,518,078	$112,542,656	$111,636,896
North Carolina	8,851	$511,546,347	$856,474,235	$251,130,695	$48,743,257	$58,037,991
North Dakota	2,996	$132,694,072	$211,087,266	$61,290,560	$11,581,923	$13,411,694
Ohio	13,762	$859,321,607	$1,488,555,466	$437,681,782	$90,731,302	$94,813,442
Oklahoma	9,871	$492,065,447	$843,349,642	$251,611,907	$49,499,185	$53,637,675
Oregon	8,913	$505,874,654	$827,488,316	$259,238,784	$54,601,132	$61,151,103
Pennsylvania	28,041	$1,734,082,321	$3,029,151,411	$932,666,740	$214,118,683	$228,704,030
Rhode Island	187	$10,232,988	$12,765,911	$4,333,917	$937,197	$1,070,504
South Carolina	7,238	$288,011,510	$440,130,049	$151,444,817	$32,239,827	$32,934,599
South Dakota	4,514	$196,063,154	$303,570,715	$99,907,412	$19,981,361	$21,773,429
Tennessee	10,126	$588,423,673	$1,076,653,687	$308,755,396	$49,034,965	$66,784,875

State	Jobs	Retail Sales (US$)	Total Multiplier Effect (US$)	Salaries, Wages, and Income (US$)	State and Local Taxes (US$)	Federal Taxes (US$)
Texas	46,917	$2,334,329,825	$4,117,303,334	$1,339,454,869	$262,226,970	$310,097,641
Utah	6,487	$293,808,223	$523,147,903	$163,059,713	$31,107,631	$34,094,522
Vermont	2,414	$190,714,942	$269,390,116	$81,347,118	$14,225,738	$18,111,667
Virginia	9,376	$528,578,198	$880,166,592	$287,465,157	$53,304,750	$67,988,705
Washington	5,595	$394,021,171	$628,263,974	$195,712,308	$35,202,901	$46,410,817
West Virginia	6,337	$302,413,973	$453,467,141	$133,145,185	$29,666,372	$31,616,573
Wisconsin	25,298	$1,394,050,097	$2,197,983,821	$604,107,185	$197,141,707	$153,773,668
Wyoming	3,071	$146,801,378	$225,131,920	$77,061,651	$13,361,942	$17,403,175
United States**	**592,944**	**$24,692,171,564**	**$66,013,310,496**	**$20,939,838,614**	**$4,178,957,748**	**$4,951,442,274**

Source: Southwick Associates, 2007.
Note. The sum of the states is less than the U.S. total. The difference comes from an expenditure that, after it leaves the state economy, continues to grow and have further impacts at the regional and national levels. A simple sum of state totals underestimates the impact of expenditures at the regional and national levels.

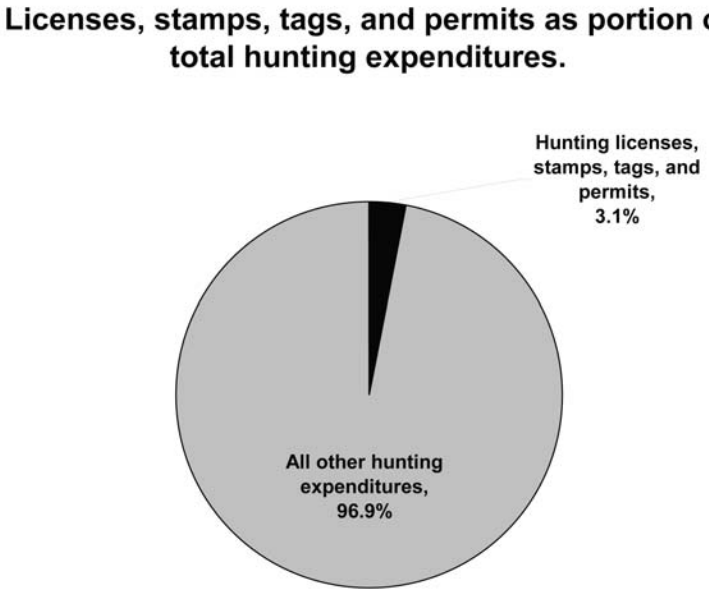
In the United States, hunting equipment and land leases and ownership constitute large portions of expenditures, but special equipment also accounts for a substantial portion. It is interesting to note that licenses, stamps, tags, and permits make up a small percentage of expenditures (Figures 1 and 2), despite the fact that many sportsmen complain that they are too costly (U.S. Fish and Wildlife Service/U.S. Census Bureau, 2007).

Figure 1. Hunters' Detailed Expenditures by Type of Expenditure



Note: Amounts are shown in US$.
Source: U.S. Fish and Wildlife Service/U.S. Census Bureau, 2007.

Figure 2. Portion of Total Hunting Expenditures Composed of Licenses, Stamps, Tags, and Permits



Source: U.S. Fish and Wildlife Service/U.S. Census Bureau, 2007.

The mean for annual hunting expenditures by hunters is US$1,884 per spender (97% of hunters spend on something in any given year) (U.S. Fish and Wildlife Service/U.S. Census Bureau, 2007). Spending totals over US$10 billion annually going into the cost of equipment and firearms; over US$6 billion spent on food, lodging, transportation, and other trip-related costs; and roughly US$5.8 billion for land leases, license and stamp fees, and membership dues (Table 2).

Table 2. Hunting Expenditures in 2006 (of Hunters Age 16 and Older)

	Amount (in thousands) (US$)	Average Per Hunter (US$)	Number of Spenders (thousand)	Percent of Hunters	Average per Spender (US$)
TOTAL ALL ITEMS	$22,893,156	$1,830	12,153	97	$1,884
Food	$2,177,229	$174	9,533	76	$228
Lodging	$614,016	$49	1,599	13	$384
Public transportation	$214,387	$17	401	3	$535
Private transportation	$2,482,537	$198	9,982	80	$249
Guide fees, pack trip or package fees	$416,529	$33	557	4	$748
Public land use fees	$47,268	$4	564	5	$84
Private land use fees	$396,810	$32	711	6	$558
Equipment rental	$80,729	$6	313	2	$258
Boating costs (launching, mooring, storage, maintenance, insurance, pumpout fees, fuel)	$102,255	$8	459	4	$223
Heating and cooking fuel	$146,853	$12	2,132	17	$69
Rifles	$1,119,900	$90	1,625	13	$689
Shotguns	$765,423	$61	1,320	11	$580

	Amount (in thousands) (US$)	Average Per Hunter (US$)	Number of Spenders (thousand)	Percent of Hunters	Average per Spender (US$)
Muzzleloaders, primitive firearms	$184,157	$15	531	4	$347
Pistols, handguns	$382,805	$31	636	5	$602
Archery equipment	$674,117	$54	1,940	16	$348
Telescopic sights	$404,866	$32	1,471	12	$275
Decoys and game calls	$187,141	$15	2,074	17	$90
Ammunition	$696,451	$56	7,995	64	$87
Hand loading equipment	$140,072	$11	929	7	$151
Hunting dogs and associated costs	$493,659	$39	780	6	$633
Other equipment	$317,765	$25	2,312	18	$137
Camping equipment	$141,920	$11	538	4	$264
Binoculars, field glasses, telescopes, etc.	$203,606	$16	968	8	$210
Special hunting clothing, rubber boots, waders	$459,823	$37	2,743	22	$168
Processing and taxidermy costs	$485,153	$39	1,496	12	$324
Other auxiliary equipment	$39,714	$3	290	2	$137
Special equipment (e.g., boats, campers, cabins, trail bikes)	$4,034,928	$323	505	4	$7,993
Magazines, books	$83,524	$7	1,767	14	$47
Membership dues and contributions	$269,660	$22	1,707	14	$158
Land leasing and ownership	$4,387,354	$351	1,606	13	$2,732
Licenses	$619,511	$50	9,506	76	$65
Federal duck stamps	$22,934	$2	1,529	12	$15
Other stamps, tags, and permits	$100,058	$8	2,689	21	$37

Source: U.S. Fish and Wildlife Service/U.S. Census Bureau, 2007.

Hunting and shooting sport expenditures also have a significant impact on state and local economies. A state-by-state breakdown of expenditures is shown in Table 3. In Texas, the highest ranked state for hunting expenditures, hunters infuse the state's economy with more than US$2.2 billion annually; similarly, Pennsylvania boasts more than US$1.6 billion in hunting expenditures annually. Although the total dollars spent on hunting in Rhode Island is significantly less than it is in other states, the overall economy in this small state, with approximately 14,000 resident and nonresident hunters, is strengthened by over US$10.2 million in hunting expenditures per year (U.S. Fish and Wildlife Service/U.S. Census Bureau, 2007).

As the U.S economy weakens, evidence suggests that hunting is a pastime that some are embracing precisely because of the weakening economic environment. According to a report released by Fox News in December 2008, hunters agree that "Hunting is making a comeback. More people are grabbing their guns and heading for the woods, and it's mostly *because of* the recession" (Cupp, 2008). Rising costs for traditional travel and vacation are prompting many to stick close to home and, more importantly, close to nature. "In a time when people are trying to pinch pennies, hunting is a recreational bargain. It's ridiculously inexpensive. You will pay as much for one day with the family at a professional baseball game as you will in a whole hunting season," says a spokesman for the Missouri Department of Conservation (Cupp, 2008). High fuel costs and soaring food prices also give hunters a pragmatic reason for returning to the woods—hunting provides relatively inexpensive and readily available meat and protein. Although it remains to be seen what impact the economic recession will have on the hunting and sport shooting industry, sportsmen remain an economic force to be reckoned with in the United States.

Table 3. State-by-State Hunting Expenditures in 2006 (of Hunters Age 16 and Older)

State where spending took place	Total expenditures (in thousands) (US$)	Total trip related (in thousands) (US$)	Food and lodging (in thousands) (US$)	Transportation (in thousands) (US$)	Other trip costs (in thousands) (US$)	Total equipment (in thousands) (US$)	Fishing equipment (in thousands) (US$)	Auxiliary equipment (in thousands) (US$)	Special equipment (in thousands) (US$)	Expenditures for other items (in thousands) (US$)
Alabama	$699,532	$417,279	$126,363	$101,414	$189,502	$221,832	$139,540	* $11,462	* $70,830	$60,421
Alaska	$516,749	$362,019	$132,056	$99,945	$130,018	$135,237	$39,504	$7,063	* $88,671	$19,492
Arizona	$802,405	$245,741	$80,144	$67,026	$98,570	$547,205	$33,529	$6,164	* $507,512	$9,460
Arkansas	$420,571	$272,160	$106,389	$84,709	$81,062	$127,228	$66,454	* $8,058	* $52,717	$21,183
California	$2,420,503	$1,203,244	$410,279	$291,465	$501,500	$1,140,587	$326,982	$90,940	* $722,665	$76,672
Colorado	$542,937	$300,324	$125,067	$111,885	$63,373	$224,118	$52,838	$10,974	* $160,306	$18,494
Connecticut	$243,552	$130,742	$37,910	$30,819	$62,013	$102,988	$49,268	$12,677	* $41,044	$9,821
Delaware	$96,775	$48,536	$17,785	$12,477	$18,274	$39,246	$14,181	$6,568	* $18,497	$8,994
Florida	$4,308,583	$1,973,985	$680,147	$419,711	$874,127	$1,944,798	$523,433	$37,035	$1,384,330	$389,800
Georgia	$1,020,411	$370,743	$152,886	$100,416	$117,441	$459,927	$134,972	$24,435	* $300,519	$189,741
Hawaii	$110,516	$72,728	$24,600	$18,480	$29,648	$36,849	$27,297	$6,850	NA	$939
Idaho	$282,972	$173,993	$75,877	$58,256	$39,860	$90,425	$38,885	* $5,943	NA	$18,554
Illinois	$774,319	$279,732	$94,413	$92,326	$92,994	$455,317	$136,349	$25,255	* $293,714	$39,269
Indiana	$627,167	$242,624	$67,201	$67,546	$107,877	$316,108	$110,784	$17,648	* $187,676	$68,435
Iowa	$322,648	$140,617	$46,271	$40,607	$53,740	$163,104	$59,311	$13,215	* $90,578	$18,927
Kansas	$242,444	$127,996	$40,561	$54,627	$32,808	$108,983	$44,817	$6,371	* $57,794	$5,465
Kentucky	$855,417	$237,430	$96,607	$67,266	$73,557	$596,587	$125,828	* $9,659	NA	$21,400
Louisiana	$1,006,136	$337,363	$96,927	$87,043	$153,393	$424,564	$122,194	* $7,633	* $294,738	$244,208
Maine	$257,124	$118,002	$51,735	$39,653	$26,613	$115,792	$27,679	$3,653	* $84,460	$23,330
Maryland	$568,211	$292,638	$88,459	$59,475	$144,703	$253,571	$97,600	$6,691	* $149,280	$22,003
Massachusetts	$769,631	$297,312	$85,723	$56,248	$155,341	$397,049	$98,524	$14,957	$283,568	$75,269
Michigan	$1,671,114	$584,030	$210,052	$180,363	$193,615	$720,637	$190,066	* $13,532	* $517,039	$366,446
Minnesota	$2,725,366	$859,657	$350,889	$299,240	$209,528	$1,220,074	$218,400	$26,485	$975,188	$645,635
Mississippi	$240,332	$105,618	$38,357	$33,464	$33,798	$120,138	$50,651	* $4,797	NA	$14,576
Missouri	$1,093,206	$457,963	$187,138	$135,593	$135,232	$517,239	$134,910	$18,514	* $363,815	$118,003
Montana	$226,349	$149,800	$58,092	$61,516	$30,192	$59,938	$23,765	$3,186	$32,987	$16,610
Nebraska	$181,280	$60,992	$24,365	$22,042	$14,584	$83,777	$32,130	$4,978	* $46,669	$36,511

Nevada	$144,634	$61,390	$26,342	$23,476	$11,572	$65,190	$26,863	$2,708	NA	$18,054
New Hampshire	$172,413	$88,581	$35,674	$28,613	$24,293	$62,892	$21,588	$6,559	* $34,744	$20,940
New Jersey	$752,273	$471,178	$88,650	$74,589	$307,939	$253,729	$128,299	$14,311	* $111,118	$27,366
New Mexico	$301,101	$128,413	$51,059	$48,588	$28,766	$80,729	$29,216	$7,293	* $44,220	$91,958
New York	$925,701	$584,644	$197,876	$143,792	$242,976	$269,704	$180,746	$18,774	* $70,185	$71,354
North Carolina	$1,124,274	$692,977	$281,279	$169,492	$242,206	$311,489	$166,816	$28,474	* $116,198	$119,809
North Dakota	$93,729	$39,076	$14,367	$18,762	$5,948	$52,346	$15,745	* $1,007	NA	$2,306
Ohio	$1,062,036	$558,793	$198,886	$125,429	$234,478	$461,692	$147,939	$21,790	* $291,963	$41,552
Oklahoma	$501,786	$301,408	$108,505	$106,687	$86,216	$169,020	$87,604	$5,849	* $75,566	$31,358
Oregon	$496,941	$258,474	$102,998	$98,698	$56,779	$199,319	$101,008	$19,364	* $78,947	$39,149
Pennsylvania	$1,291,211	$298,610	$113,989	$107,453	$77,168	$896,076	$153,021	$37,226	* $705,829	$96,526
Rhode Island	$153,694	$78,900	$20,276	$9,561	$49,063	$68,950	$18,458	$7,346	* $43,146	$5,845
South Carolina	$1,404,133	$525,937	$194,829	$115,546	$215,562	$725,624	$176,118	* $28,664	* $520,842	$152,572
South Dakota	$131,089	$58,624	$25,821	$21,408	$11,395	$38,564	$20,215	* $1,698	NA	$33,900
Tennessee	$599,683	$290,424	$101,063	$90,676	$98,685	$280,692	$90,631	$11,076	* $178,985	$28,568
Texas	$3,237,212	$1,563,994	$448,390	$480,681	$634,924	$1,363,877	$496,454	$47,487	NA	$309,341
Utah	$371,087	$183,859	$65,081	$63,356	$55,421	$174,560	$54,025	$15,828	* $104,708	$12,667
Vermont	$63,749	$40,535	$17,916	$9,858	$12,762	$18,907	$8,023	* $1,591	NA	$4,306
Virginia	$733,777	$395,264	$122,771	$72,448	$200,045	$318,616	$95,681	$14,978	* $207,957	$19,897
Washington	$904,796	$354,880	$117,878	$120,130	$116,873	$485,945	$139,299	$35,378	$311,267	$63,971
West Virginia	$333,454	$153,525	$63,284	$57,739	$32,503	$154,149	$38,504	$21,775	NA	$25,780
Wisconsin	$1,647,035	$747,312	$351,744	$225,688	$169,879	$623,420	$152,350	$8,795	$462,275	$276,303
Wyoming	$521,479	$110,604	$44,488	$50,939	$15,178	$97,185	$17,480	* $3,037	* $76,668	$313,690

*Based on small sample size; NA = not applicable because sample size too small to report data.
Source: U.S. Fish and Wildlife Service/U.S. Census Bureau, 2007.

Hunters Fund Game Management and Wildlife Conservation Efforts

Hunting is valuable not only for the dollars it adds to the U.S. economy, but also for reducing economic losses associated with overpopulation, such as human-wildlife conflicts, livestock and agricultural damage, and disease. Increasing urbanization results in a growing public demand to control wildlife damage. The North American Model of Wildlife Conservation uses hunting and trapping to regulate and stabilize wildlife populations. Although some of the damage caused by wildlife, especially household damage, is attributed to species that are considered non-game and cannot be hunted, hunting can still be used effectively to control certain nuisance and overpopulated species.

The cost of human-wildlife conflicts exceeds billions of dollars annually. Damage caused by reported and unreported deer-vehicle collisions is estimated at US$1.6 billion annually (Conover, 2002). The cost of bird-aircraft collisions, which has become an issue of increasing concern in the United States since US Airways Flight 1549 landed in New York's Hudson River in January 2009, can be catastrophic. Estimates in the 1990s showed that the costs for bird-aircraft collisions exceeded US$300 million (Conover, 2002), and even more importantly, one incident of this magnitude can result in a devastating loss of human life. The total cost of wildlife damage to metropolitan households is estimated at over US$8.3 billion (Conover, 2002). In total, research offers a conservative estimate of the total cost of wildlife damage in the United States—US$22 billion annually (Table 4) (Conover, 2002). According to the U.S. Department of Agriculture (2006), wildlife damage resulted in crop and livestock losses totaling more than US$944 million in 2001. In Ontario, Canada, the cost of wildlife damage to crops and livestock has increased more than 20% since 1998, putting the average annual cost of agricultural damage at approximately US$41 million (Mussel & Schmidt, 2009).

Table 4. Annual Wildlife Damage Losses Occurring in the U.S.

Problem	Losses (US$ billion)
Damage from deer-automobile collisions	1.6
Damage from bird-aircraft collisions	0.3
Damage to agricultural producers	4.5
Damage to the timber Industry	
Southeast	1.2
Northeast	1.6
Northwest	0.6
Damage to metropolitan households	8.3
Damage to rural households	4.2
Economic losses from human injuries, fatalities, and illnesses which result from wildlife-related incidents	Unknown, but estimated in the billions
TOTAL LOSSES	**22.3**

Source: Conover, 2002.

Research suggests that wildlife damage would increase by a staggering 221% if hunting and trapping ceased in the United States (IAFWA, 2005). Hunting remains one of the most cost-effective methods for controlling wildlife populations. For example, the state of Connecticut took extra measures to curb deer-automobile collisions in the state by allowing special hunts. Residents report that the hunts

have been successful in controlling deer populations and reducing damage. Conversely, the state does not currently allow bear hunting, but populations continue to move in from neighboring states. As the bear population increases, biologists report that nuisance complaints have increased about 300%, and agency costs in time and money have also increased significantly (IAFWA, 2005). In the state of Utah, the Division of Wildlife Resources reports spending US$1.5 million on wildlife complaints, US$1.1 million on livestock and crop depredation, and US$0.4 million on nuisance wildlife annually, and says that the state would not be capable of addressing wildlife damage or satisfying legal mandates without hunting and trapping (IAFWA, 2005). Used as a wildlife management tool, hunting helps to maintain healthy wildlife populations and reduces the costs associated with wildlife damage and agricultural losses.

Hunters also remain the top contributors to wildlife conservation efforts. Through a combination of excise taxes applied to hunting gear and equipment, hunting license sales totals, and private donations, hunters invest more than US$1.3 billion in wildlife conservation. Funding obtained through excise taxes applied to hunting gear account for US$280 million of these total funds, and hunting license sales total approximately US$725 million nationwide, both of which remain primary funding sources for most state fish and wildlife agencies. Hunters' donations to over 10,000 private groups and organizations, totaling more than US$300 million annually, account for the remainder of the billions of dollars contributed to wildlife conservation efforts each year (Southwick Associates, 2007). These dollars support state and national game management, wildlife and habitat conservation, and conservation education programs. Additionally, the federal Duck Stamp serves as a vital tool for waterfowl and wetland conservation in the United States. With US$0.98 on every dollar going toward conservation efforts, the Duck Stamp has generated more than US$750 million since its implementation in 1934 and has helped in the purchase or lease of more than 5.3 million acres of waterfowl habitat in the United States.

Global Implications of Hunting

The economic impact of hunting and the shooting sports is felt not only in the United States but throughout the world. As Steve Sanetti, president of the Sporting Arms and Ammunition Manufacturer's Institute, explained before the United Nations (Sanetti, 2009):

> The economic impact of hunting supports more than wildlife conservation …. Economic stimulus from hunting is visible globally, from small towns in rural America to small villages in African countries where a dependable, yearly food and revenue stream is vitally important. When wildlife is considered as a valuable commodity to protect and conserve, it works to prevent the illegal taking of game and the eventual devastation of species and their habitat.

According to the Federation of Associations for Hunting and Conservation of the EU (FACE), there are 7 million hunters in Europe (Federation of Associations for Hunting and Conservation of the EU, 2008), who contribute an estimated €16 billion to European economies (Kenward & Sharp, 2008). Recent research conducted in the United Kingdom found that 480,000 people take to the fields to shoot live quarry. These shooters spend £2 billion each year on goods and services, supporting the equivalent of 70,000 full-time jobs and contributing approximately £250 million a year to conservation (Public and Corporate Economic Consultants, 2006).

In developing nations, sustainable hunting tourism attracts valuable revenue in the form of tourist dollars. Trophy hunting attracts tourists to numerous countries with many remote areas and few conventional tourism attractions. Nations that advertise their natural resources as hunting and sport shooting opportunities attract international tourists and money, which is funneled into local communities in the form of wages from guide and hospitality services as well as into statewide infrastructure development. Additionally, profits from hunting and shooting tourism are often used on site to reinforce the sustainability of the park or reserve. As an example, in Zimbabwe, hunters spend millions of dollars on trophy hunting fees and guides, and the meat, skins, and bones from their kills are often contributed to local villages (Swan, 2003). In 1994, trophy hunting in Zambia exceeded US$1.29 million and contributed approximately 15-20% of the average household income in several districts in Zimbabwe (Butler, 1995). Recent research indicates that more than 18,500 trophy hunters each year generate a minimum gross revenue of US$201 million in the 23 countries in sub-Saharan Africa that allow trophy hunting. For example, trophy hunting generates a revenue of US$100 million per year in South Africa, US$28.5 million in Namibia, US$27.6 million in Tanzania, and US$20 million in Botswana (see Table 5; Lindsey, Roulet, & Romanach, 2007). Similarly, the Eurasian tourist hunting market is estimated at €40-60 million per year (Hofer, 2002).

Table 5. Highest Revenues for African Trophy Hunting

Country	Number of Clients/Year	Client Nationalities (%)	Revenues/Year (US$ million)	Animals Shot/Year	Jobs from Hunting
South Africa	8,530	USA 57 Spain 8 Germany 5	100	53,885	5,000-6,000
Namibia	5,363	Germany 35 USA 21 Austria 8	28.5	22,462	2,125
Tanzania	1,654	USA 45 Spain 15 France 9	27.6	7,034	4,328
Botswana	350	USA 80 EU 12	20	2,500	1,000
Zimbabwe	1,874	USA 57 Germany 9 Spain 6	16	11,318	unknown

Source: Linsey, Roulet, & Romanach, 2007.

Hunting tourism has become an invaluable, consistent source of revenue for developing nations. Perhaps more importantly, hunting tourism provides thousands of stable jobs for local residents, funds sustainable parks and wildlife management strategies, and supports overall economic development in local communities. Hunting tourism is vital to the economies of developing nations because it results in high revenues from low volumes of hunters and, perhaps more importantly, the majority of revenues accrued through hunting tourism remain in the country (Linsey, Roulet, & Romanach, 2007).

Conclusion

In the United States and internationally, hunting and sport shooting remains a major economic player. In the United States, the economic contributions of hunting and fishing are substantial. Sportsmen help to redistribute dollars from the wealthier urban and suburban areas to rural areas (note that although rural residents hunt at a greater rate than do urban and suburban residents, there are more sportsmen from urban and suburban areas than from rural areas because of the sheer size of the urban population in the United States). Similarly, hunting in developing nations redistributes dollars to rural villages and helps boost economic development in local communities. Hunting also provides a financial return from lands left in their natural state. In the past, people have opposed conservation initiatives on the basis that fish and wildlife—and therefore hunting—come at the expense of economic prosperity. When managed as recreational resources, the benefits of hunting are undeniable: expenditures from hunting increase state and national revenue, provide jobs for millions in both developed and developing nations, and contribute to the conservation and preservation of our world's natural resources and habitats.

REFERENCES

Butler, V. (1995). Is this the way to save Africa's wildlife? *International Wildlife 25(2),* 3-43.

Conover, M. (2002). *Resolving human-wildlife conflicts: The science of wildlife damage management.* Boca Raton, FL: CRC Press.

Cupp, S. E. (2008). *Hunting, long in decline, is back on the rise.* Retrieved July 22, 2009, from http://www.foxnews.com/story/0,2933,465144,00.html.

Federation of Associations for Hunting and Conservation of the EU (FACE). (2008). Annual report 2007-2008. Retrieved July 22, 2009, from http://www.face-europe.org/Documents/Annual%20Report,%2007-08.FIN.pdf.

Hofer, D. (2002). *The lion's share of the hunt. Trophy hunting and conservation: A review of the legal Eurasian tourist hunting market and trade under CITES*. TRAFFIC Europe Report.

International Association of Fish and Wildlife Agencies (IAFWA). (2005). *Potential costs of losing hunting and trapping as wildlife management methods.* Retrieved July 22, 2009, from http://www.fur.ca/index-e/pdf/Cost_of_losing_hunttrap.doc.

Kenward, R., & Sharp, R. (2008). Use nationally of wildlife resources across Europe. In Manos, P., and Papathanasiou, J. (eds.), *GEM-CON-BIO: Governance & ecosystems management for the conservation of biodiversity* pp. 117-132. Thessaloniki, Greece: Aristotle University.

Lindey, P.A., Roulet, P.A., & Romanach, S.S. (2007). Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa. *Biological Conservation 134(4),* 455-469.

Mussel, A., & Schmidt, C. (2009). *An economic update of the wildlife impact assessment for Ontario agriculture.* Report for the Ontario Soil and Crop Improvement Association. Retrieved July 22, 2009, from http://www.ontariosoilcrop.org/User/Docs/Programs/Wildlife_Update_Report_051109.pdf.

National Sporting Goods Association (NSGA). (2008). *Ten-year history of sports participation.* Retrieved July 22, 2009, from http://www.nsga.org/files/public/10YearHistory_4web_090327.pdf.

--------. (2009*). 2008 sporting goods sales reach $53.4 billion.* Retrieved July 22, 2009, from http://www.nsga.org/i4a/pages/index.cfm?pageID=4207.

Public and Corporate Economic Consultants. (2006). *Shooting sports: Findings of an economic and environmental survey.* Retrieved July 22, 2009, from http://www.shootingfacts.co.uk/pdf/pacec_glossy1.pdf.

Sanetti, S. (2009). *Making the case for sporting firearms at the United Nations.* Retrieved July 22, 2009, from http://www.saami.org/docs/SanettiUNexcerptsJuly2009.cfm.

Southwick Associates. (2002). *The economic importance of hunting in America.* Report for the International Association of Fish and Wildlife Agencies (now the Association of Fish and Wildlife Agencies), Washington, DC.

--------. (2007). *Hunting in America: An economic engine and conservation powerhouse.* Report for the Association of Fish and Wildlife Agencies, Washington, DC.

Swan, J. A. (2003). *Peaceful arms: Hunting and sport shooting as culture and heritage*. Paper presented at the symposium "UN and Regional Small Arms Regulation: Issues Concerning Civilian Firearms Ownership in Search of Common Ground," World Forum on the Future of Sports Shooting Activities, London, May 2, 2003.

U.S. Department of Agriculture. (2006). *Managing wildlife damage to crops and aquaculture.* Retrieved July 22, 2009, from http://www.aphis.usda.gov/wildlife_damage/misc_pdfs/Fy%202007%20Notebook%20Sections/Protecting%20Agriculture/Protecting%20Agriculture.pdf.

U.S. Fish and Wildlife Service/U.S. Census Bureau. (2007). *2006 national survey of fishing, hunting, and wildlife-associated recreation*. Washington, DC: Author.