

# Where Have Our Animal Science Graduates Gone?

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## Abstract

Five hundred twenty-five alumni of the Department of Animal Science at Washington State University (WSU) were queried about their job history, and a return of 195 replies (37.1%) was obtained. Of these, 89 and 106 were from males and females, respectively, and 159 B.S. degrees and 58 M.S./Ph.D. degrees were reported. Career-wise, 116 and 129 (total = 245) jobs were reported to have been held by male and female alumni, respectively, with nearly 30% of alumni being involved in higher education, 17% possessing a job in the allied animal/food industry, 12% having a career in some aspect of veterinary medicine, and a little over 10% indicating a traditional career in farming, ranching, dairy or feedlot. A smaller (20 year) window of time was evaluated, with only B.S. level alumni respondents between the years 1988 to 2007. During this time, 740 official B.S. degrees in Animal Science were awarded to 237 male and 503 females. A total of 98 (13.2%) responses were received from 26 (~11%) male and 72 (14.3%) female graduates. The top three careers of this group were some aspect of the veterinary profession (25.5%), the allied animal/food sciences area (19.4%) and the farming/ranching/dairy or feedlot field (9%).

## Introduction

Where has the Washington State University (WSU), Animal Sciences (AS) graduates gone? Have the alumni used their skills that were provided them, while at WSU, in a favorable manner? Answers to these questions could help the AS department make decisions regarding class content, emphasis of classes and in formulation of long-range departmental goals (Ingram et al., 2004; Good and Kochan, 2008). Moreover, information derived from alumni about their career dynamics could provide rationale for forming areas of AS departmental excellence (Good and Kochan, 2008) with which to better prepare future graduates for diverse careers (Ingram et al., 2004).

Assessment methods to obtain information from dynamic populations include formal surveys (Denniston and Russell, 2007; Rasmussen et al., 2008), as well as casual questionnaires. Portions of both may be mined for useful information (Riley, 1997). However, unless the participants of surveys are provided an incentive (Jobber et al., 2002; Hardin and Ainsworth, 2007), most surveys are inefficient

and result in only small returns (Braunsberger et al., 2007; Denniston and Russell, 2007).

In an effort to develop a “family atmosphere” relationship with alumni, the AS Department at WSU formed an alumni association called the Friends of Animal Science (FAS; Dodson, 2008). As this group has been communicating effectively by email for two years, this network was used to ask graduates about their career jobs. For this report, replies from the established FAS network were assessed for general career information. The goal was to provide an indication of how useful the degree in Animal Science was for each respondent, and the subsequent mining of all replies could provide more detailed information, if desired.

## Methods

Information on animal science alumni was obtained from the WSU Foundation office in April, 2006. While the information bundle contained a host of information, ~1150 email addresses were used to form an initial alumni database. The database was probed to assess support for forming the FAS (alumni) group (Dodson, 2008). An initial email message sent to alumni resulted in ~300 return messages saying that the email address was no longer valid, or that individuals were not interested at that time in forming such an alumni organization. From 2006 to present, the database has been quite dynamic, with alumni receiving messages about the FAS, requests to nominate individuals for departmental awards, and general information. As a normal function, new alumni interested in hearing about the WSU Department of Animal Science or FAS rotated onto the database (email address added) and others, either tired of hearing about the department or FAS or simply “moving on,” rotated off the database. In October of 2009 there were 525 valid alumni email addresses in the database.

For the purposes described herein, all individuals of this database were simply (and non-formally) asked: “...If you do not mind, I am interested in collating information about you so that we can get an idea of what you are doing. Please take a few minutes and let me know the degree(s) you obtained at WSU, the types of jobs you have had over your lifespan, and any other information you might want me to evaluate..... This information is coming to me and me alone, but will be useful to the future direction of the department and to others. The Department of

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## Where Have

Animal Science will NOT use this information for any other purpose (fund raising, advertisements, etc).” Two additional email messages were sent to the alumni database thanking those who responded, and asking others to send in their small career summaries. Responses were obtained over the course of the next two weeks. Subsequently a total of 195/525 emails were received. The results were collated and compiled for this report. The WSU, Institutional Review Board (IRB) did not review this (informal) assessment message, prior to it being sent to our alumni. However, as we are in the process of developing/sending a formal survey to all alumni, that (formal) survey document is being reviewed by the WSU IRB.

## Results and Discussion

In the past, the AS Department at WSU has not done a good job in effectively communicating with alumni. Typically, a student would graduate, and then the AS Department would not hear anything about them from that point onwards. However, the need to create synergistic alumni relations has now been a prevailing mindset in the AS Department, and other departments, at WSU. To this endpoint, the AS Department has created an effective and viable alumni organization called the Friends of Animal Science, whereby alumni volunteers support a wide-range of departmental activities. As a long-term department effort, the AS Department is implementing strategic planning initiatives and curriculum

**Table 1. Number of Department of Animal Science degree recipients alumni that responded to a (non-reward) request by email regarding their career (N = 195/525; 37.1% responded).**

Graduation Years	Response Total	Male	Female	BS Degree	MS/PhD Degree
2006-2009	14	5	9	12	3
2001-2005	54	12	42	48	6
1996-2000	15	7	8	14	4
1991-1995	16	6	10	11	10
1986-1990	26	15	11	20	10
1981-1985	21	6	15	15	8
1976-1980	19	13	6	15	5
1971-1975	11	7	4	8	3
1966-1970	3	3	0	1	3
1961-1965	2	2	0	1	1
1956-1960	5	5	0	5	4
1950-1955	7	7	0	7	1
<1950	2	1	1	2	0
<b>Totals</b>	<b>195<sup>a</sup></b>	<b>89</b>	<b>106</b>	<b>159</b>	<b>58</b>

<sup>a</sup>Some individuals received more than one academic degree at WSU, but were only counted one time.

evaluations, and forming consensus groups to provide constructive input to the department. Alumni have been asked to provide input regarding their career choices in an effort to determine how effective our program offerings are for current or future students. While it is recognized that the future animal scientist will not be the same as in the past, the AS Department at WSU is taking measures to ensure a quality education that prepares career-ready professionals.

According to the US government, an animal scientist is broadly defined as one whom “develops better, more efficient ways of producing and processing meat, poultry, eggs and milk,” and approximately 5,400 animal scientists were gainfully employed in 2006 (US Department of Labor). There are approximately sixty animal sciences departments in North America. Not considering poultry science or dairy

**Table 2. WSU Department of Animal Science alumni of Table 1 that indicated having a job in the listed vocations.**

Job <sup>a</sup>	Male	Female
Farm/Ranch/Dairy/Feedlot (25; 10.2% total)		
owner	3	7
operator	3	0
production manager	5	2
laborer	1	4
Veterinary Clinic (30; 12.2% total)		
owner	5	3
associate	1	14
technician	1	2
assistant	0	3
clerical	0	1
Wildlife (5; 2% total)		
zoo/sanctuary	0	2
research laboratory	1	1
marine mammals	0	1
Allied Animal/Food Industry (42; 17.1% total)		
biotechnical	0	3
clothing	0	1
farm store/nursery	2	2
finance	1	3
food/food processing	5	4
health	3	5
insemination technician	1	1
nutrition/supplements	4	4
pet	0	2
pharmaceutical	0	1
Higher Education (72; 29.4% total)		
pursuing a degree	4	4
faculty	29	8
instructor	2	3
administrator	8	4
facility manager	4	1
research technician	2	3
K-12 (17; 6.9% total)		
substitute	1	5
kindergarten/elementary	0	4
science	1	3
agriculture	0	2
administrator	0	1
Medical (9; 3.4% total)		
physician/physician assistant	1	0
nurse/EMT	0	3
clinical laboratory/IVF	2	2
social programs	0	1
Finance (6; 2.4% total)		
non-agriculture	2	2
insurance	1	1
Government (24; 9.8% total)		
state/local	2	4
federal (including USDA)	8	6
international	2	0
military	2	0
Private Business (15; 6.1% total)		
construction/real estate	1	1
education materials	1	0
pharmaceutical/health	0	1
consultant	4	3
other (including sales)	3	1
<b>Total (245)</b>	<b>116</b>	<b>129</b>

<sup>a</sup>May have designated multiple occupations.

**Table 3. Graduating (B.S. level) student numbers for the Department of Animal Sciences Washington State University for 1988 to 2007 (20 years).**

B.S. Level Graduates			
Year	Number	Male	Female
2007	45 <sup>a</sup> (5)	10 (1)	34 (4)
2006	48 (6)	8 (1)	40 (5)
2005	39 (10)	9 (3)	30 (7)
2004	36 (16)	8 (3)	28 (13)
2003	53 (8)	11 (1)	42 (7)
2002	42 (10)	11 (2)	31 (8)
2001	48 (5)	10 (1)	38 (4)
2000	45 (9)	17 (3)	28 (6)
1999	56 (1)	19 (0)	37 (1)
1998	36 (1)	9 (0)	27 (1)
1997	57 (2)	29 (1)	28 (1)
1996	31 (2)	7 (2)	24 (0)
1995	22 (2)	9 (2)	13 (0)
1994	32 (1)	16 (0)	16 (1)
1993	31 (3)	12 (1)	19 (2)
1992	26 (5)	11 (0)	15 (5)
1991	22 (0)	11 (0)	11 (0)
1990	18 (3)	10 (2)	8 (1)
1989	30 (6)	14 (3)	16 (3)
1988	23 (3)	6 (0)	17 (3)
<b>Totals</b>	<b>740(98)<sup>b</sup></b>	<b>237(26)<sup>c</sup></b>	<b>503(72)<sup>d</sup></b>

<sup>a</sup>Number is the actual number of official graduates from the Department of Animal Science for the specific year indicated. Number to the right (in parentheses) are the numbers of alumni that responded to email request for information.

<sup>b,c,d</sup>Represents 13.24% of total graduates during the 20 year period [10.97% of male and 14.3% of female students in the overall graduate population.

science departments, if only the animal science departments produced 60 viable graduates each, annually, it would only take two years to fill all animal science positions. Consequently, it is evident that not everyone who obtains a degree in animal science will obtain positions as traditional animal scientists. As the data illustrate, many non-traditional jobs are career destinations for our graduates. Animal-related fields such as the veterinary medical profession are an important and desired career pathway for some animal science graduates. Trained animal scientists are well prepared for diverse careers, and that is good given the backgrounds and career interest areas that today's students possess.

Graduates from the Department of Animal Sciences at WSU (Table 1, Table 2, Table 3, and Table 4), representing a time span of 60 years, appear supportive of efforts to obtain information about their career directions. Most of the respondents were female, interested in veterinary school, and disinterested in farming or ranching. These results parallels those reported for other institutions (Buchanan, 2008). The job categories of graduates (Table 2) suggest that, while veterinary medicine may have at one time been of interest to a majority of students that interest was in many cases not be their actual vocation a few years after leaving WSU. Careers in higher education and the allied animal/food sciences were popular, and graduates are likely to fill numerous non-traditional non-animal positions instead of attempting veterinary school.

It has been reported that B.S. level graduates change their jobs 10 times before they are 38 years old

**Table 4. WSU Department of Animal Science (BS level) alumni of Table 3 that indicated presently having a job in the listed vocations.**

Job	Male	Female
Farm/Ranch/Dairy/Feedlot (9; 9.2% total)		
owner	3	1
operator	0	1
production manager	0	2
laborer	0	2
Veterinary Clinic (24; 24.5% total)		
owner	3	0
associate	1	14
technician	0	4
assistant	0	2
Wildlife		
zoo/sanctuary	0	1
Allied Animal/Food Industry (19; 19.4% total)		
biotechnical	0	1
consultant	1	1
crops/farm management	0	2
finance	0	1
food/food processing	2	2
health	1	1
insemination technician	1	0
nutrition/supplements/feed	3	2
pet industry	0	1
Higher Education (15; 15.3% total)		
pursuing a degree	4	5
faculty	1	0
instructor	0	1
administrator	0	2
facility manager	0	1
research technician	0	1
K-12		
substitute	0	2
kindergarten/elementary	0	1
science	0	2
agriculture	0	1
administrator	0	1
Medical		
physician	1	0
nurse/EMT	0	3
clinical laboratory	0	0
social organization	0	1
Finance		
non-agriculture	1	1
insurance	0	2
Government		
state/local	1	2
federal (including USDA)	0	3
Private Business		
construction	0	1
consultant	0	0
research laboratory	1	1
sales	1	0
Homemaker	0	1
Not employed	0	1
Other (oil refinery)	1	1
<b>Total (98)</b>	<b>26</b>	<b>72</b>

(Terkanian, 2006). Part of the 20 year range used for this report falls into that age category (Table 3; Table 4), but students who shared their career history did not change jobs as many times as that previously reported (data not shown). This is heartening and suggests that either graduates obtained good jobs and stayed there, or they made the most of it and are responsible employees. Popular vocations for alumni (from 1988 to 2007) appear to be related to veterinary medicine, allied animal/food science, and higher education.

Academics are responsible for training career-ready students so that they can obtain a job after they graduate. Is the AS Department at WSU doing that, or can it do better? Alumni input to the informal questions were numerous, detailed, and many replies contained much more information than was requested. Moreover, student messages (almost to a person) state: "if you need any further information, just let me know." Graduates at both the B.S. and

**Table 5. Accomplishments of selected B.S. level alumni from WSU Department of Animal Science.**

Name	Year Graduated	Accomplishment(s)
Jeff Boivin	1987	General Manager at the Cow Palace, LLC, an 8,000 cow dairy and oversees a 10,000 head feedlot.
Jennifer (DeVoe) Damon	2004	Farm Operations Specialist, Sakuma Bros. Farms, Inc. [1,200 acres of strawberries, raspberries, blueberries, blackberries and apples]
Callie Fernandez	2003	Relationship Manager at US Bank, focusing primarily on small business and agriculture lending
Melinda Fernyhough	2000	Manager of Scientific Affairs and Nutrition Research, Hartz, Inc
Kevin Grove	1990	Director of Obese Resource and Metabolic Disease Working Group, Oregon National Primate Research Center, Beaverton, OR
Crystal Hedden	2006	Quality Assurance Manager for slaughter and fabrication divisions at Washington Beef Processing Plant [Owned by AgriBeef]
Julie L. (Hayes) Hopkins	1985	Marine biology; studying humpback whales in Hawaii and doing environmental impact statement, IHA permit, and biological evaluation work in 15 of the worlds seas, Sea Turtles; Worked onboard surveys for monitoring Naval submarine/sonar exercises for marine mammal and sea turtle effects. Bears; Grizzly Bear Outreach Project [ <a href="http://www.bearinfo.org/">http://www.bearinfo.org/</a> ]
Barbara (Stevenson) Jackson	1976	Owner/operator: Animal Health Express and Vaquero Feed and Livestock Supply [ <a href="http://www.animalhealthexpress.com">http://www.animalhealthexpress.com</a> , <a href="http://www.vaquerofeed.com">http://www.vaquerofeed.com</a> ]
Cameron McGinnis	2004	Plant Manager at Mora Iced Creamery, located on Bainbridge Island, WA
Colleen Nolan	1982	Dean of School of Natural Sciences and Mathematics at Shepherd University, West Virginia
Esther Ovbiebo Tongo	1982	Founder & CEO of Getsym Enterprises Inc., and Esther's Authentic Foods brands- Esther's Ready Stew [ <a href="http://www.readystew.com">http://www.readystew.com</a> ]
Kelly Torrisi	2003	Veterinarian at an Equine Ambulatory practice in Northern California [All About Equine Veterinary Services in Chico California]
Aura (White) Schneidmiller	2002	Registered Nurse

**Table 6. Accomplishments/present positions of selected M.S. and Ph.D. level alumni from WSU Department of Animal Science.**

Name	Year Graduated	Degree(s)	Accomplishment(s)
Janine Brown	1980; 1984	M.S. & Ph.D.	Head of the world's largest wildlife reproductive endocrinology laboratories associated with the Smithsonian and National Zoo
Ching-Fong Chang	1982; 1986	M.S. & Ph.D.	Vice President of the University, Director Center for Excellence of Marine Bioscience and Biotechnology; National Taiwan Ocean University
Sandra Davidge	1985	M.S.	Canadian Research Chair (I) in Women's cardiovascular health; Scientist, Alberta Heritage Foundation for Medical Health, Professor, Departments of OB/GYN, University of Alberta
Matt Gibson	1989	Ph.D.	Vice President – ICM Feed: (Division of ICM, Inc. – Ethanol Design and Engineering firm). Oversee all business operations of company which provides specialty ingredients into food and livestock industries.
Debora Hamemik	1984	M.S.	Associate Dean of the Agricultural Research Division (ARD), Associate Director of the Nebraska Agricultural Experiment Station, and Professor of Animal Science at University of Nebraska
Jim Kinder	1975	Ph.D.	Chair of the Department of Animal Sciences and Interim Chair of Human Nutrition, the Ohio State University
Lee McDowell	1971	Ph.D.	Faculty, Animal Science department at the University of Florida; multiple awards for academics, international relations and mentoring students
Terry Nett	1972	Ph.D.	Associate Dean for Research and Graduate Education, Colorado State University
Steven J. Pylot	1999	M.S.	Fulltime rancher/farmer with family, running a set of black cows that calve in May and run all calves as yearlings, seed 3500 acres of crop, custom haul cattle, hay and feedlot.
Gary D. Smith	1993	Ph.D.	Co-Director for Alfred A. Taubman Medical Research Institute Consortium for Stem Cell Therapies, University of Michigan
Kenny Wells	2006	M.S.	Manager of the Jackson Agriculture Research Station, where applied research on beef cattle reproduction and forages/grazing is conducted; Ohio State University

graduate levels have asked to receive this summary of the responses received, suggesting that our alumni are still interested in the department. The simple fact that our graduates participated in the formation of the FAS (alumni) group, the first of such on the WSU campus, speaks volumes about their loyalty. In looking towards the future, the department has a continued obligation to train the best animal science student for the changing times.

The information contained within Table 5 and Table 6 document specific alumni and their current career positions. The diversity of the job choices suggests that a solid foundation was provided by WSU, but in some cases the graduate had to learn other tools in order to be successful at a vocation. The AS department is continuing to assess options for a flexible and workable degree program to meet the needs of continuing and new students (Table 7). In turn, alumni are routinely asked for input, and will continue to be asked in order to make our degrees valuable in meeting the needs of students in the 21st Century. For example, the authors are working with the WSU, Social and Economic Science Research Center to develop a formal survey document, with specific hypotheses/objectives, which will be sent to alumni in an attempt to assess details of how the AS Department might better service B.S., M.S. and Ph.D. students.

So, where have the WSU AS Department graduates gone? The results of this report suggest that they are gainfully employed, responsible and contributing members of all walks of life. While not all AS graduates are working in an animal-related field, and while their positions are diverse, they remain sensitive to the department and responsive to questions and requests posed to them. As no one was rewarded via any incentive for supplying information for this report, it could also be said that graduates are still enthusiastic about making the department better for future students.

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**Table 7. Steps that the Department of Animal Sciences, Washington State University is doing to aid graduate job/career success.**

<u>Step</u>	<u>Outcome</u>
Student member on teaching committee	Real-time feedback on curriculum
Senior exit interview	Historical feedback on "total academic picture"
Hands-on opportunities	Provide experience in practical areas
Internship programs	Provide practical experience in field
Faculty open-door policy	Develop internal network that might be used for employment
Departmental alumni association	Two-way communication with alumni
Commodity group interaction	Network for graduate job opportunities
Curriculum assessment	Use information from all steps to revise curriculum to better serve students

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