

The
Wildlife
Society

BWG

News

Newsletter of the Biometrics Working Group, The Wildlife Society

Edited by Christine Ribic

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July 2001

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BWG Election Information

A ballot for voting on BWG Officers and Board Members is contained within this newsletter. The ballot must be received by 31 August 2001 to be counted; election results will be announced during the BWG meeting at the TWS Conference in Reno.

Ballots should be returned to:
Alan Franklin
201 Wagar Building
Colorado State University
Fort Collins, CO 80523

Thank you for voting!

BWG Contact Information

Officers

- Chair John Sauer, USGS Patuxent Wildlife Research Center, john_r_sauer@usgs.gov
- Chair-elect Christine Ribic, USGS BRD Wisconsin Cooperative Wildlife Research Unit, caribic@facstaff.wisc.edu
- Past-Chair Lyman McDonald, WEST, Inc., lmcdonald@west-inc.com
- Secretary David Otis, USGS BRD South Carolina Cooperative Fish and Wildlife Unit, daveo@clemsun.edu
- Treasurer Glen Sargeant, USGS BRD Northern Prairie Wildlife Research Center, glen_sargeant@usgs.gov

Board members

- Alan Franklin, alanf@cnr.colostate.edu
(Audit and Elections and Nominating Committee Chair)
- William Gould, wgould@nmsu.edu
(membership committee chair)
- Steve Sheriff, sheris@mail.conservation.state.mo.us
(advisory committee chair)
- Julie Yee, julie_yee@usgs.gov
(technical sessions committee chair)

Web master

Douglas Johnson, Douglas_H_Johnson@usgs.gov

BWG Web page

<http://www.npwrc.usgs.gov/bwg>

Candidates

Chair Elect:

- Duane R. Diefenbach**, USGS Pennsylvania Cooperative Fish and Wildlife Research Unit
- William L. Thompson**, USGS Arkansas Cooperative Fish and Wildlife Research Unit

Secretary:

- David L. Otis**, USGS South Carolina Cooperative Fish and Wildlife Research Unit
- Glen A. Sargeant**, USGS Northern Prairie Wildlife Research Center

Treasurer:

- Wesley Newton**, USGS Northern Prairie Wildlife Research Center
- Julie L. Yee**, USGS Western Ecological Research Center

Board Members:

- William Clark**, Iowa State University
- William Gould**, New Mexico State University
- Lyman L. McDonald**, WEST Inc.
- Gail Olson**, USGS Oregon Cooperative Fish and Wildlife Research Unit
- Sara Oyler-McCance**, USGS Midcontinent Ecological Science Center
- Eric Rexstad**, University of Alaska - Fairbanks
- Steven Sheriff**, Missouri Department of Conservation

Candidate Information

Chair Elect Candidates:

Duane R. Diefenbach is Assistant Unit Leader of the USGS BRD Pennsylvania Cooperative Fish and Wildlife Research Unit. His degrees are in wildlife ecology and management from Washington State University (B.S. 1985), University of Maine (M.S. 1988) and University of Georgia (Ph.D. 1992). Prior to entering the Coop Unit system, Duane worked for the Pennsylvania Game Commission as biometrician for the research program. His primary research interests are in empirically validating methods of estimating parameters of wildlife populations. Past research has included validating the scent-station survey technique for bobcats, and the performance of sightability estimators for elk. Duane is a charter member of the Biometrics Working Group, has served as Treasurer, and is currently chair of an ad hoc committee to develop internet voting. He is also active in the Pennsylvania Chapter of The Wildlife Society where he has served on the executive board and as program chair of the 2001 annual meeting.

William Thompson is Assistant Unit Leader (Wildlife) of the USGS BRD Arkansas Cooperative Fish and Wildlife Research Unit, University of Arkansas, Fayetteville. He has degrees in wildlife and fisheries biology (B.S., University of Vermont), fish and wildlife sciences (M.S., Pennsylvania State University), and biological sciences (Ph.D., Montana State University; statistics minor). Bill previously worked as an environmental research consultant in Bozeman, Montana, as a postdoctoral research fellow at Colorado State University, Fort Collins, and as a research biologist for the U.S. Forest Service, Boise, Idaho, before moving to the Unit program. He has been involved in research projects studying sea lampreys, chinook salmon, steelhead, bull trout, black and turkey vultures, ruffed grouse, sharp-tailed grouse, wild turkeys, various songbirds, river otters, white-tailed deer, mule deer, and elk. His current interests include developing robust sampling methods for estimating numbers of fish and wildlife species, evaluating bias and relative precision of various plot selection methods for monitoring spatially clustered and temporally variable populations, assessing effects of large-scale fire on wildlife communities, and applying an information-theoretic approach to modeling ecological data.

Secretary Candidates:

David Otis is the current Unit leader of the USGS/BRD Iowa Cooperative Fish and Wildlife Research Unit after having been the Unit Leader for the South Carolina Cooperative Fish and Wildlife Research Unit at Clemson University since 1991. From 1977-1990, Dave was a biometrician and research administrator at the Denver Wildlife Research Center. He received his graduate education in statistics at Colorado State University, and was a post-doctoral research associate at Utah

State University. His current research interests include design and analysis of habitat selection studies, population analysis of mourning doves, and estimation of herpetofaunal population parameters in restored wetlands. David served as Secretary for the BWG in 2000-2001.

Glen A. Sargeant received a B.S. in Fisheries and Wildlife Biology from the University of North Dakota, an M.S. in Wildlife Resources from the University of Idaho, and an M.S. in Biometry and Ph.D. in Wildlife Ecology from the University of Wisconsin—Madison. He now works as a research wildlife biologist and statistician for the USGS Northern Prairie Wildlife Research Center. He also has worked for the Yakama Indian Nation as a Forest Wildlife Biologist and Spotted Owl Project Leader; for Battelle PNL at the Hanford Site, where he studied mule deer and elk; and as a temporary employee for a number of state and federal agencies. His primary interests are in wildlife population dynamics and survey methods. Glen is the current Treasurer of the BWG and previously served as a member of the board. He is a member of TWS, the North Dakota Chapter of TWS, the American Statistical Association, and an adjunct professor at the University of North Dakota. According to Glen, "The BWG does an enviable job of sharing statistical concepts and their relevance with a broad audience of wildlife biologists. It has also helped fill a broad gap in opportunities for professional interactions among statisticians. If elected, I'll be pleased to help the BWG continue and expand these important services."

Treasurer Candidates:

Wesley Newton received a B.S. in General Biology from Mesa State College, Grand Junction, Colorado and a M.S. in Applied Statistics from Utah State University, Logan, Utah. Wes has been a consulting statistician with the USGS Northern Prairie Wildlife Research Center since 1990 and is currently Chief of the Centers Support Services Section. Prior to coming to Northern Prairie, Wes worked as a consulting statistician at U.S. Army equipment testing facilities in Utah and Alaska as well as the Statistics Consulting Center at the University of Idaho. Since being at Northern Prairie, Wes has welcomed the opportunity to apply statistical methods to research in an area that he has a real concern for, natural resources. Wes believes that the BWG does an admirable job of not only disseminating contemporary statistical methods, but fosters an open forum for the exchange of statistical ideas and their application to natural resource problems. "Serving as treasurer of the BWG would allow me the opportunity to give something back to the group that I have been taking advantage of."

Julie Yee is currently with the Dixon Field Station of the Western Ecological Research Center of the US Geological Survey. Julie helps to design surveys, program and perform analyses of data, and write and review manuscripts. Her training includes a Ph.D. in statistics with emphasis in biostatistics from the University of California at Davis, 1997;

a M.S. in statistics also from UC Davis, 1993; and a B.S. in mathematics from the California Institute of Technology, 1991. She was the recipient of the 1995 UC Davis Graduate Student Excellence in Teaching award. Her lifelong interest in mathematics is matched by interests in statistical modeling of wildlife behavior and in ensuring statistical tools are accessible and understandable to all researchers. She is a member of the American Statistical Association and The Wildlife Society. Her research experience includes the analysis of incomplete data, use of Bayesian methods, survival models, survey sampling, spatial distributions, habitat selection, and estimation of population abundances and trends in abundance. Her research subjects have been primarily waterfowl, with some seabirds, webless migratory game birds, and the occasional giant garter snake. She has worked in a bank and as a cashier and has an excellent track record balancing her checkbook. Julie served as a Board Member for the BWG in 2000-2001.

BWG Board Member Candidates:

William Clark is a Professor of Animal Ecology at Iowa State University where he has been for over 20 years. He received a B.S. in Environmental Science from Rutgers University, an M.S. in Wildlife Ecology from Utah State University, and a Ph.D. in Ecology from Utah State University. His research expertise is in population and landscape ecology, population modeling, and wetland ecology. His graduate students have worked on models of snow geese, pintails, and most recently individual-based models of pheasants. Other students have contributed to the statistical literature on survival analyses and mark-recapture of closed populations. He is currently directing field studies of the landscape ecology and predatory effects of raccoon, skunk, and red fox on ground nesting birds. Work on muskrats in experimental wetlands at Delta Manitoba was just recognized with TWS award for Outstanding Edited Book. Besides TWS, he is active in the American Society of Mammalogists, Ecological Society of America, and the Iowa Academy of Science, and he is former Chair of the Ecology and Evolutionary Biology Graduate Program at ISU. "I hope that my broad experience in quantitative ecology will stimulate discussion of biometrics issues interesting to the members of BWG and relevant to the members of TWS."

William Gould: I am an associate professor in the University Statistics Center at New Mexico State University where I have been on the faculty for the past 7 years. My formal education consists of a Ph.D. in Biomathematics (1994, North Carolina State University), a masters in statistics (1990, NCSU), and a bachelors in mathematics (1988, Clemson University). My professional interests pertain to sampling and estimation problems in biological populations. Recent interests have focused on trend estimation of raptor counts and mark-resight estimation of an elk population in Northern New Mexico. I have a strong interest in improving the teaching of statistics both in the classroom and through consultation. I would like to continue serving as a board member because I have just gotten

the hang of it. I believe the Biometrics Working Group has and will continue to be extremely important in that regard and want to be a part of that mission. I have maintained memberships in the following organizations for several years: American Statistical Association, The Biometric Society, The Wildlife Society and Gamma Sigma Delta.

Lyman L. McDonald is President and a Senior Biometrician with Western EcoSystems Technology, Inc., a statistical and environmental consulting company headquartered in Cheyenne, Wyoming. Lyman has over thirty years of experience in the application of statistical methods to design, conduct, and analyze field and laboratory studies. His specialties include sampling of biological communities, calibration of biased sampling procedures, linear models, and multivariate analysis. His experience has led to appointments on regional and national technical advisory and review committees, including the Independent Scientific Advisory Board (ISAB) to the Northwest Power Planning Council (NPPC) and the National Marine Fisheries Service (NMFS) and the Statistical Design and Analysis Team for the U.S. Environmental Protection Agency Environmental Monitoring and Assessment Program (EMAP). As a member of the ISAB for four years, Dr. McDonald has been a contributor to over 30 technical reports to the NPPC and NMFS on fisheries and habitat issues in the Columbia River Basin. Dr. McDonald is the author of more than 75 papers in the scientific literature and is joint author on the book entitled *Resource Selection by Animals: Statistical Design and Analysis for Field Studies*.

Gail Olson is a post-doctoral research associate with the Oregon Cooperative Fish and Wildlife Unit at Oregon State University, Corvallis. She received a Ph.D. in Wildlife Biology from Colorado State University, an M.S. in Ecology (Statistics minor) from North Carolina State University, and a B.S. in Zoology from the University of Rhode Island. She worked as a biometrician for the Missouri Department of Conservation for over 7 years, and is currently responsible for estimation and modeling of population parameters for northern spotted owls in Oregon. Her research interests include spatial aspects of population dynamics (such as dispersal and spatial heterogeneity), abundance estimation, and meta-analysis. She is a charter member of the Biometrics Working Group and proud to be part of such a dynamic and successful group. After benefiting greatly from being a member of the BWG, she feels it is time to give something back and thus would like to contribute her time and energy to continuing the work of this group in educating and advising the wildlife profession on biometrics applications.

Sara Oyler-McCance has been a Conservation Geneticist with USGS, Midcontinent Ecological Science Center since 1999. She is also a Research Faculty at the University of Denver. She received a B.S. in Biology from the University of Michigan, an M.S. in Wildlife Ecology from the University of Maine, and a Ph.D. in Wildlife Biology from Colorado State

University. Her research deals primarily with population genetics and molecular evolution, with a particular interest in sampling issues and statistical methods applied to genetic data.

Eric Rexstad is an associate professor of quantitative wildlife biology in the Department of Biology and Wildlife/Institute of Arctic Biology, at the University of Alaska Fairbanks. He has formerly served as software editor of the Wildlife Society Bulletin, and associate editor of The Journal of Wildlife Management. He has also served on the Alaska Chapter executive board, and has been faculty advisor to the student chapter of The Wildlife Society for 9 years. His current research interests are in abundance and survival estimation of small mammals, as well as the development of long-term monitoring designs for natural areas.

Steven Sheriff is the terrestrial biometrics supervisor for the Missouri Department of Conservation in Columbia, Missouri. He has been in a biometrics position with the Department of Conservation since 1978 when he left Colorado State University where he received a MS degree in Wildlife Biology in the same year. Activities with The Wildlife Society in which he has been involved include being an associate editor for the Journal of Wildlife Management and the chair of the Biometrics Working Group. Other professional organizations in which he is involved include the American Statistical Association, The Biometrics Society (ENAR), International Society of Bayesian Analysis, North Central Section of The Wildlife Society, and the Missouri Chapter of The Wildlife Society. He believes, "the Biometrics Working Group (BWG) is an important component of The Wildlife Society. It services the wildlife profession by fostering education and development of quantitative skills necessary for wildlife management and science. BWG also fosters communication among statisticians and those interested in quantitative applications within the wildlife profession. In order for BWG to be successful and achieve its goals, we all need to be active leaders within our organization. I strongly believe that BWG will not succeed without involvement by its membership."

Vote on Proposed Changes in the BWG Charter

The proposed changes to the BWG Charter to allow Internet voting were published in the January newsletter as required by the Charter. They are repeated here. Now is the time to vote on the proposed changes. Included on the Ballot for Officers is a section for voting on the proposed changes in the BWG Charter. PLEASE VOTE.

Here are the suggested changes to the BWG charter to allow voting using the Internet. Additions are in bold and stricken text in stricken italics.

ARTICLE IV. ELECTIONS, OFFICERS, AND EXECUTIVE BOARD

Section 2. BALLOTING - Balloting shall occur by mail or an **Internet website**. ~~Completed *Written*~~ ballots shall be received from the members and counted by the Nominating and Elections Committee. For ballot counting purposes, the Working Group Chair shall appoint a replacement for any member of the Nominating and Elections Committee who has been nominated for an elective position.

CLAUSE A. Members in arrears shall forfeit their rights to vote during the period of their delinquency.

CLAUSE B. The candidate receiving the largest number of votes on the ~~completed *written*~~ ballot shall be declared elected.

ARTICLE X. AMENDMENT TO CHARTER

Section 1. PROCEDURE - This charter may be altered or amended by a majority of the Working Group members voting by mail or **Internet website** ballot, or at any membership meeting provided due notice of the proposed changes (Article V, Section 1, Clause B) has been provided. A member who will be absent from the meeting may file a signed absentee ballot with the Secretary prior to the scheduled time for counting ballots.

Internet Voting- A Progress Report

Duane Diefenbach

Internet voting still remains an elusive target, but we are making some progress. During elections this fall the membership will be able to vote on changes to our by-laws to permit internet voting (see the enclosed ballot). This is the easy part.

In the meantime, we have been investigating actual methods of implementing an internet voting system. One option is to create a web-based database by which members can vote through a website, but this is technically difficult (for me, at least) and probably is not an option that can be easily implemented.

The Executive Board investigated using a commercial internet survey program, available for a fee, in which the voting would occur by members going to a website where they would enter their name and then enter their votes. It is very simple to create the ballot and the technology is simple and it is very easy to tally votes, etc. However, there are two disadvantages to this system: (1) the cost would be \$249.00 (more than our current expenses for voting, not counting time and effort of our election committee), and (2) it requires keeping a temporary database of who votes. The latter issue probably could be circumvented by sending via email each member a unique voting ID. The list of voting IDs could be retained but the

corresponding names could be destroyed before the unique IDs become part of the verification process of the mailing database. Complicated stuff to prevent one candidate from voting for the other!

The third option would be some type of scripted email voting. This would be inexpensive, but we would need someone to develop a system and it would not be anonymous voting.

If members have any other ideas how to implement a ballot system via the internet please contact me (DRD11@psu.edu). Regardless, expect to hear some discussion on this issue at our next meeting.

Membership Committee Report

William Gould

As chair of the membership committee, I have been examining our membership records for the past four years. During the period from 1998 through 2001, we have had a total of 175 distinct members representing 11 countries (including the US). Currently, membership in the BWG has reached an all-time high of 125 members. Our current membership (year 2001) consists of 105 men and 20 women, representing 6 countries. We added 14 new members to the group for 2001, but lost 12 members from the previous year. I surveyed (via email) 38 former members of the BWG to ascertain their reasons for dropping their membership. Eleven of these former members did not have email addresses available and several addresses were invalid. Only 8 people responded to the survey.

Several reasons were given for discontinuing membership. (1) As a result of living abroad, they were not able to benefit from our workshops, etc., (2) some have changed their job emphasis, (3) one person felt the working group did not appear to be very active, (4) another respondent needed to reduce expenses, (5) one person stated they had little time or expertise to offer the working group. All of the respondents indicated they had not benefited from the workshops and symposia we have offered.

When asked what their expectations were of the group and where we had fallen short of those, many criticisms were invalid. For example, some wanted to see workshops given. Others thought we should discuss some of the current trends and analysis issues in a newsletter that non-experts could understand. One respondent would like to see data analysis programs that could be downloaded from our web site. I believe we have made efforts in all of these areas. Another respondent requested a web page that could provide advice and guidance with regards to analytical methods and expert biometrical consulting. My initial response is that one cannot suggest a particular design or analysis method without first interacting with a client and truly understanding their research project. Should we consider listing members and their expertise area and contact information for those willing to serve as 'online consultants'? If anyone has comments or ideas for increasing membership in the BWG, please contact me at (wgould@nmsu.edu).

2001 TWS Conference – Preliminary Program Highlights

Christine Ribic

Hopefully all of you have received the preliminary program for the 2001 TWS Conference. There is a lot to interest BWG members.

Highlights

Tuesday Sept. 25

BWG-sponsored Workshop: Adaptive Wildlife Management: Concepts, Optimization Tools, and Case Studies Workshop (full day, \$25 registration fee)

Welcome Reception and Raffle (early evening; ticket required)

Tour the Breweries (late evening; \$17 fee)

Wednesday Sept. 26

Plenary Session: The Endangered Species Act – Some New Approaches (morning)

BWG-sponsored Symposium: Methods and Application for Monitoring Wildlife in National Parks (afternoon)

International Wildlife Film Festival (evening)

Thursday Sept. 27

BWG Working Group Meeting (noon-2pm)

Friday Sept. 28

Contributed Paper Sessions: Wildlife Habitat Relationships; Conservation of Communities, Ecosystems, and Landscapes; Ecology and Conservation of Birds (all day)

Student Quiz Bowl (evening)

Saturday Sept. 29

BWG-sponsored Symposium: Bayesian Analysis: A New Frontier for Wildlife

- a note from Steve Sheriff

This symposium, entitled "Bayesian Analysis: a New Frontier for Wildlife," will provide you with an introduction to Bayesian analysis and its advantageous application to many wildlife analysis problems. Mark Kaiser, Department of Statistics at Iowa State University, will introduce us to the fundamental concepts of Bayesian analysis. His presentation will be simple and nontechnical. Three additional speakers will present development of Bayesian approaches to address wildlife specific problems. Dongchu Sun, Department of Statistics at University of Missouri, will focus on recent developments in small area estimation and hierarchical Bayesian modelling. Recent developments in the application of Bayesian analysis to complex

capture-recapture problems will be addressed by Andy Royale from the U.S. Fish and Wildlife Service. Bayesian estimation of age-specific nest survival rates will be covered by Chong He, Department of Statistics at the University of Missouri. These three speakers will be followed by Jay Ver Hoef, Alaska Department of Fish and Game, who will illustrate the use of Bayesian analysis for addressing real-world wildlife problems. Finally, Doug Johnson, USGS Biological Resource Division, will lead the speakers and the audience in a panel discussion concerning your questions about Bayesian analysis approaches. This symposium should offer something for everyone in the wildlife profession as we explore this data analysis alternative.

Last but Not Least: Lake Tahoe Beach Party (evening)

Publication of BWG book: *Modeling in Natural Resources Management*

Tanya Shenk and Alan Franklin

Modeling in Natural Resource Management offers an overview of the basic principles for understanding and evaluating models and provides examples of how models are developed and used appropriately in natural resource management. The book evolved from a BWG symposium on modeling held during the fourth annual conference of The Wildlife Society in Snowmass, Colorado. We designed the book as a contributed volume, with chapters written by natural resource modeling experts (many of whom are members of the BWG), to concentrate the best and most current information about modeling. Chapter senior authors include Mark S. Boyce, William T. Clark, Michael Conroy, Donald L. DeAngelis, Douglas H. Johnson, William L. Kendall, Lyman L. McDonald, Marc Mangel, James D. Nichols, and Gary C. White.

This book focuses on the fundamental components of development, interpretation, and application of models in natural resource management. Each chapter emphasizes how models should be constructed and interpreted and highlights how models can be used and misused. The book also updates those already familiar with modeling because many of the principles presented in the book include recent progress in developing and interpreting models, such as model selection and evaluation, and approaches to individual- and spatially-explicit modeling. The first part of the book, *Overview of Models*, includes three chapters that provide a conceptual framework for the remainder of the book by defining what models are and how the different classes of models fit into the process of science. The second part, *Development and Interpretation of Models*, discusses key components necessary for addressing the question "is this model appropriate and useful for the question at hand?" In this section, we attempted to build on the first part of the book by including chapters that discuss different modeling paradigms and how models can be appropriately evaluated. The final part, *Application of Models*,

provides examples of how models are used in natural resource management and how further progress in the use of modeling in both the science and management of natural resources might be achieved.

Our primary goal in the development of this book was to communicate to two very different groups of readers, scientists involved with natural resource management and managers who apply the science to real-world problems. In developing each chapter, we asked that authors present their material in a manner that would be clear to readers who were not involved in their particular area of expertise. However, we also asked them to maintain a quality of work that would be acceptable to their own peers in their particular area of interest. Thus, the brunt of the work in reaching the goal of this book fell to the authors of the chapters. We thank each of these authors for their successful efforts in summarizing and presenting their thoughts on the modeling topics about which they wrote. We also thank all of the reviewers, also primarily BWG members, for their thoughtful comments which further enhanced each chapter. Lastly, we thank the members of the BWG who supported our efforts to bring this book to publication, especially Steve Sheriff and Christine Bunc.

The TWS Biometrics Working Group BALLOT

Chair Elect: (Vote for One)

_____ Duane R. Diefenbach

_____ William L. Thompson

Secretary: (Vote for One)

_____ David L. Otis

_____ Glen A. Sargeant

Treasurer: (Vote for One)

_____ Wesley Newton

_____ Julie L. Yee

Board Members: (Vote for Four)

_____ William Clark

_____ William Gould

_____ Lyman L. McDonald

_____ Gail Olson

_____ Sara Oyler-McCance

_____ Eric Rexstad

_____ Steven Sheriff

Amendment of Charter to Allow Internet Voting

_____ YES - I agree with the proposed changes to the charter to allow Internet voting

_____ NO - I do not agree to change the charter to allow Internet voting

Ballots are due 31 August 2001

Fold letter so return address on back shows – TAPE the letter shut and affix a first-class stamp.

Thank you.

attach first-
class
postage here

Alan Franklin
201 Wagar Building
Colorado State University
Fort Collins, CO 80523

**The Wildlife Society
8th Annual Conference**

September 25-29, 2001
Reno-Tahoe, Nevada



Hosted by the Western Section

**Registration and Program Information
Available June 2001**

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<http://www.wildlife.org>