

# NCSE Newsletter

## NCSE prepares for International Statistical Ecology Conference, 9-11 July 2008

The International Statistical Ecology Conference (ISEC) will be held 9-11 July 2008 at the University of St. Andrews, Scotland. It will be a satellite conference of the [International Biometric Conference](#), held the following week in Dublin.

This conference will bring together experts from around the world to discuss topics of interest to ecological statisticians and numerical biologists. We will hold sessions focused upon mark-recapture methods, distance sampling methods, other abundance estimation techniques, monitoring of biodiversity, survey design and analysis for estimating population trends, modelling of spatial trends in animal density, integrated population modelling, stochastic population dynamics modelling, stochastic multispecies modelling, and stochastic modelling of animal movement.

Invited speakers (*and their papers*) include:

[Ken Burnham](#), Assistant Unit Leader, Colorado Cooperative Fish and Wildlife Research Unit, *Capture-recapture data analysis in ecology: where we are and how we get there*

[Anne Chao](#), Taiwan National Chair Professor, National Tsing Hua University, Taiwan, *Abundance-based similarity indices and their estimation when there are unseen species in samples*



*Gateway Building, St Andrews*

[James Clark](#), Blomquist Professor of the Environmental Sciences and Biology, Duke University, *How Bayes is changing environmental science: Application to climate change and the biodiversity paradox*

[Jim Nichols](#), Wildlife Biologist, USGS, Patuxent Wildlife Research Center, USA, *Sampling processes, statisticians, and the growth of ecological knowledge*

[Shirley Pledger](#), Reader in Statistics, Victoria University of Wellington, New Zealand, *Mixture models in capture-recapture*

[Roger Pradel](#), Biometry and Population Biology Team Leader, Center for Evolutionary and Functional Ecology,

Montpellier, France, *Multi-event: the capture-recapture of uncertain states*

[Carl Schwarz](#), Professor, Simon Fraser University, Canada, *Designed experiments in mark-recapture*

The programme of talks and a list of posters appear on pages 4 to 7. Please note that these may be subject to change.

Various registration packages are available; please check the conference website for details. (<http://www.creem.st-and.ac.uk/ocs/index.php/isec/isec2008/>) Early bird discounts are available until 30th April 2008.

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### Special points of interest:

- Honours for NCSE members
- NCSE International Statistical Ecology Conference programme
- Funding confirmed for 5 years
- Talks and seminars by NCSE members
- Visitors to NCSE
- Arrivals, departures, and appointments

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## EPSRC funding confirmed for 5 years

One of the conditions of the award of the EPSRC grant to set up NCSE in October 2005 was that NCSE was required to undergo an eighteen month review at which point it would be decided whether the

funding would end after three years, or continue for five years. We are delighted to say that funding has been confirmed for the full five-year period.

**“EPSRC funding confirmed for full 5-year period.”**

## Talks, seminars and courses by NCSE members

Recent talks and seminars given by NCSE members include the following. Further information can be obtained from the speaker.

**Robert B. Gramacy:** *Importance tempering*, Dec. 2007, University of Southampton.

*Bayesian treed Gaussian process models*, Aug. 2007, award talk ASA Sect. on Bayesian Statistical Science, JSM SLC., UT.

**Leah R. Johnson:** *Modelling microcolony formation in *Vibrio cholerae**, Dec. 2007, Zoology Dept., University of Cambridge.

**Steve Buckland:** instructor on a Tropical Ecology, Assessment and Monitoring (TEAM) workshop, *Estimating and monitoring for conservation and management of animal populations*, Oct.-Nov. 2007, Panama City.

*Embedding population dynamics models in inference*, Oct. 2007, RSS Local Group Meeting, Sheffield.

*Sampling wildlife*, Modern Trends in Sur-

vey Sampling, March 2008, General Applications Section, Royal Statistical Society, London.

**Rachel Borysiewicz:** *Integrated population modelling for multi-site data*, Oct. 2007, RSS Local Group Meeting, Sheffield.

**Toby Reynolds:** *Integrated data analysis in the presence of emigration and tag loss: a study of common guillemots on (and off) the Isle of May*, Oct. 2007, RSS Local Group Meeting, Sheffield.

**Eleni Matechou:** *Extracting age-specific demographic rates from animals of unknown age*, Oct. 2007, Age Determination Workshop, Rostock, Germany.

**Byron Morgan:** *And age shall not wither*, July 2007, Rostock, Germany.

*Model identification, parameter redundancy and exhaustive summaries*, Sept. 2007, Environmental Statistics Section, Royal Statistical Society, London.

*Incorporating age-dependence in models for mark-recapture-recovery data*, Oct. 2007, Age Determination Workshop, Rostock, Germany.



**Great Cormorants (*Phalacrocorax carbo sinensis*)** © Florian Möllers

*Completing the ecological jigsaw*, Nov. 2007, University of Reading.

*Modelling heterogeneity in the survival of wild animals*, Nov. 2007, University of Kent.

*Determining parameter redundancy using symbolic algebra*, Nov. 2007, Imperial College.

*Recent developments in statistical ecology*, Feb. 2008, University of Bristol.

*New aspects of parameter redundancy*, April 2008, RSS Local Group Meeting, West Midlands.

## NCSE member honoured with Savage award

Since 1993<sup>1</sup>, the International Society for Bayesian Analysis (ISBA) and the American Statistical Association (ASA) Section on Bayesian Statistical Science (SBSS) have jointly given the Leonard J. "Jimmie" Savage award each year to two outstanding doctoral dissertations in Bayesian econometrics and statistics. One award is for theory and methods: for a dissertation that makes important original contributions to the foundations, theoretical developments, and/or general methodology of Bayesian analysis. The other is for applied methodology: for a dissertation that makes outstanding contributions with novel Bayesian analysis of a substantive problem that has

potential to impact statistical practice in a field of application.

In August 2007 at the Joint Statistical Meetings in Salt Lake City, Utah, the award for applied methodology was presented to NCSE member Robert B. Gramacy for his thesis entitled "Bayesian treed Gaussian process models." Please join us in congratulating him on this fine accomplishment.

For more information about the Savage Award, please see:

<http://www.bayesian.org/awards/>

**“Robert B. Gramacy awarded Savage Prize for best doctoral dissertation in applied Bayesian methodology”**

[Savage.html](#)

<sup>1</sup> The award was instituted by the NBER-NSF Seminar in Bayesian Inference in Econometrics and Statistics in 1977. ISBA and the ASA Section on Bayesian Statistical Science joined as co-sponsors in 1993.

## NCSE at the Dublin International Biometric Conference

Immediately following the ISEC, many members of NCSE will move on to the International Biometric Conference in Dublin. NCSE members have submitted a wide range of abstracts. There will also be two other sessions involving the NCSE:

A special NCSE session with talks by David Elston, Byron Morgan and Ken Newman.

An invited paper session organised by Steve Buckland and Byron Morgan, with talks by Paul Blackwell, Olivier Gimenez and Andy Royle.

***“NCSE organises sessions at the Dublin International Biometric Conference”***

## Honour for NCSE co-director

We are pleased to announce that Professor Steve Buckland has been elected a Fellow of the Royal Society of Edinburgh (RSE). Membership of the RSE is multidisciplinary, encompassing excellence in the Sciences, Arts, Humanities, the Professions, Industry and Commerce, which makes it unique amongst learned societies in the UK.

Candidates for Fellowship go through a rigorous four-stage selection process, culminating in a postal ballot amongst the existing Fellows. Notable Fellows have included Charles Darwin, John Logie Baird and William Wordsworth.

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## Visitors to NCSE

Anne Viallefont, from the University of Lyons, is visiting the University of Kent for 6 months from February 2008. Anne's interests include capture-recapture methods and general biological modelling. She will be working with Takis Besbeas and Byron Morgan.

Shirley Pledger, from the University of Wellington, Victoria, New Zealand, will be visiting the University of Kent for 1 month in June/July 2008. She will be working with Eleni Matechou, Byron Morgan and others. Her research interests include mixture modelling and methods for stopover

duration analysis.

Also visiting Kent for shorter periods will be David Fletcher, from the University of Otago, to work with Byron Morgan, and Ted Catchpole, from the Australian Defence Force Academy, Canberra, Australia, to work with Diana Cole and Byron Morgan.

## New appointments

Andrew Thomas joined the NCSE at St Andrews in February 2008 to work on the development of user-friendly software to implement robust Bayesian methods for fitting state-space models of animal population dynamics. He is well-known for his ground-breaking work in developing WinBUGS.

Rachel Borysiewicz was appointed to a post-doctoral research position in the NCSE at Kent in April 2008 to develop a computer package for fitting state-space models using the Kalman filter. This work follows on from that of her PhD thesis and earlier work by Takis Besbeas.

Colin Millar joined the NCSE in October

2007. Colin is based at the University of St Andrews and is working towards a PhD on a project in the area of fisheries research, jointly supervised by David Borchers and Rob Fryer.

Lauren Oliver also joined the NCSE in October 2007. Lauren is based at the University of Kent and is working towards a PhD on the analysis of long-term ecological data sets, jointly supervised by Tim Coulson and Byron Morgan.

Angelika Studeny joined the NCSE in January 2008. Angelika is based at the University of St Andrews and is working on a project in biodiversity monitoring, supervised jointly by Steve Buckland and Anne Magur-

***“NCSE welcomes new staff and students”***

ran.

In September 2008, James Lawrence will be starting his PhD in the area of Trans-dimensional sequential importance sampling for model averaging, with application to Bayesian state-space models of wildlife population dynamics. James will be based at the University of Cambridge and will be supervised by Bobby Gramacy, with co-supervisors at the University of St Andrews.

## International Statistical Ecology Conference - Provisional Programme

### Tuesday 8 July

1800 Welcoming wine reception

### Wednesday 9 July

1000 Welcome from *Byron Morgan*, Professor of Applied Statistics, University of Kent, and Director of NCSE  
 1005 How Bayes is changing environmental science: application to climate change and the biodiversity paradox. *James Clark*, Blomquist Professor of the Environmental Sciences and Biology, Duke University  
 1045 Coffee break

### Mark-Recapture

1115 Adult survival and capture heterogeneity *D. Fletcher, J. Lebreton, O. Gimenez, M. Schaub*  
 1130 Structural equation modelling for mark-recapture data *O. Gimenez, A. Gregoire, S. Cubaynes, T. Anker-Nilssen, V. Grosbois*  
 1145 Incorporating genotype uncertainty into mark-recapture-type models for estimating abundance using DNA samples *R. Barker, J. Wright*  
 1200 Monthly analysis of teal ring-recovery data *D. Cole, P. Besbeas, B. Morgan*  
 1215 Simultaneous specification on transience and trap-dependence effects in multi-state models *N. Ratcliffe, M. Frederiksen*  
 1230 Using multi-strata models and potential function analyses to determine the site fidelity of a high elevation, mountain yellow-legged frog *K. Matthews*

1245 Lunch

1400 Abundance-based similarity indices and their estimation when there are unseen species in samples *Anne Chao*, Taiwan National Chair Professor, National Tsing Hua University, Taiwan

1445 Multievent: the capture-recapture of uncertain states, *Roger Pradel*, Biometry and population biology team leader, Center for Evolutionary and Functional Ecology, Montpellier France

1530 Coffee break

### Abundance Estimation Techniques

1600 Estimating scale-dependent hierarchical variations and longitudinal distribution of stream fish abundance-Datun stream, Taiwan *Y. Wang, Y. Lin, T. Cho, C. Wang*  
 1615 Model for combining genetic sampling, camera traps, and telemetry data: estimating black bear density in Middle Georgia, USA *J. Sanderlin, M. Conroy*  
 1630 Taking account of the hierarchical structure of wildlife when modelling species distribution and abundance: the case of Auks in the Bay of Biscay *E. Bellier, P. Monestiez, G. Certain, J. Chadoef, V. Bretagnolle*  
 1645 On using checklist data and occupancy models to compare abundance in and outside of protected areas *R. Altwegg, B. Erni*  
 1700 Modelling Krill densities using thin-plate regression splines and the branch-and-bound algorithm *M. Cox, M. Mackenzie*  
 1715 Combined model- and sample design-based estimation of estuarine fish populations *K. Newman*

1800 Poster session

### Modelling Spatial Trends

1115 Modelling spatial distribution of wildlife populations: coupling a non-stationary hierarchical model with geostatistics *P. Monestiez, E. Bellier, C. Guinet*  
 1130 Hierarchical models for the estimation of manatee abundance from aerial surveys *R. Dorazio*  
 1145 Assessing spatial variation in abundance of forest ungulates using distance sampling with hierarchical models *N. Kumar, J. Royle, B. Gardner, J. Nichols, K. Karanth*  
 1200 On a new stochastic method for spatial extrapolation of sampling data: application to olive fruit fly population data *M. Avlonitis*  
 1215 Not too fast! Tempering species distribution models with biological realism *J. Chipperfield*  
 1230 Density surface modelling of harbour porpoise in the North Sea *L. Burt, C. Paxton, P. Hammond*

### Stochastic Population Dynamics Modelling

1600 Multiscale metapopulation dynamics *C. Zheng*  
 1615 Spatio-temporal dynamics of predator-prey dynamics, or, Why are my voles cycling? *R. O'Hara*  
 1630 Spatial structure and population dynamics in fragmented landscapes *P. Harrison*  
 1645 Spatially-explicit stochastic modelling of Oyster population dynamics in The Chesapeake Bay, USA *M. Christman*  
 1700 Dispersal strategies and population persistence of linyphiid spiders *L. Johnson*  
 1715 Parameter estimation for a nonlinear functional response in a stochastic predator-prey system *S. Pasquali, F. D'Ippoliti, G. Gilioli*

## International Statistical Ecology Conference - Provisional Programme

### Thursday 10 July

- 0915 Capture-recapture data analysis in ecology: where we are and how we get there, *Ken Burnham*, Assistant unit leader, Colorado Cooperative Fish & Wildlife Research Unit, Colorado State University
- 1000 Mixture models in capture-recapture, *Shirley Pledger*, Reader in Statistics, Victoria University of Wellington, New Zealand
- 1045 Coffee break

### Mark-Recapture

- 1115 Recent advances in estimating complex capture-recapture data in the presence of multiple tagging and tag-loss *S. Smout, R. King, P. Pomeroy*
- 1130 Mark-recapture modelling and ring mis-reading *A. Johnston, R. Green*
- 1145 Conditional analysis with a reducing reporting probability *D. Brown, B. Morgan, I. Jolliffe, R. Robinson*
- 1200 Adjusting for state uncertainty using a robust capture-recapture design *W. Kendall, J. Hines*
- 1215 Embedding population dynamics in mark-recapture models *J. Bishop*
- 1230 Estimating distributions of correlated individual life-history traits from mark-recapture data *T. Ergon, H. Skaug*
- 1245 Lunch

### Distance Sampling

- 1400 Variance estimation for systematic designs in strip or line transect sampling *R. Fewster*
- 1415 Combined method of road count survey with distance sampling point count technique for census of wintering raptors *S. Nikolov*
- 1430 Application of nocturnal distance sampling to monitoring ungulates: comparison of conventional analysis and density surface modelling *S. Forcardi, B. Franzetti, F. Ronchi, P. Aragano, R. Calmanti, M. Scacco*
- 1445 A simulation approach to plan distance sampling surveys of chamois in the Italian Alps *V. La Morgia, L. Discalzo, G. Badino*
- 1500 Incorporating density gradients in distance sampling surveys *T. Marques, D. Borchers, S. Buckland*
- 1515 A mixture model approach to distance sampling detection functions *D. Miller, L. Thomas*
- 1530 Coffee break

### Abundance Estimation Techniques

- 1600 Extensions of statistical population reconstruction to small game and big game species with pooled age classes *J. Skalski, R. Townsend, K. Broms*
- 1615 Hierarchical models for estimating density from DNA mark-recapture studies *B. Gardner, J. Royle*
- 1630 Estimating population size by means of mark-resighting counts: theoretical considerations and empirical results *L. Fattorini, M. Marcheselli, C. Pisani*
- 1645 Assessing animal abundance using Royle-Nichols occupancy based model: Sign surveys of forest ungulates *A. Gopalswamy, K. Karanth, N. Kumar*
- 1700 Estimating the abundance of Asiatic elephants based on dung piles: survey methods and statistical models *S. Muniandy, R. K. Kizhakkemadham, J. E. Antony, N. P. Vijayakumar*
- 1715 Two new abundance estimators based on hierarchical models of counts and territory encounter histories *M. Kery*

### Integrated Population Modelling

- 1115 Integrated population modelling: violating assumptions of independence *R. Borysiewicz*
- 1130 Estimating breeding frequency from laying dates: a mixture model approach *T. Cornulier, D. Elston, P. Arcese, T. Benton, X. Lambin, R. Robinson, J. Reid, W. Sutherland*
- 1145 Modelling population trends by combining information from multiple time series *P. Dixon, J. Sauer, D. Otis*
- 1200 What is the impact of violating the independence assumption in integrated population modelling? A simulation study *F. Gebreselassie, O. Gimenez, M. Schaub*
- 1215 An integrated approach to modelling constant effort ringing data *V. Cave, R. King, S. Freeman*

### Stochastic Population Dynamics Modelling

- 1400 State-space population viability modelling for Alabama Beach Mice *M. Conroy, J. Runge, C. Fonnesebeck*
- 1415 Joint estimation of reaction norm, selective survival and reproduction cost in Atlantic salmon: a Bayesian State Space modelling approach of CMR data *M. Buoro, E. Prevost, O. Gimenez*
- 1430 A Bayesian approach to model Atlantic salmon lifecycle in the Foyle catchment (Northern Ireland) *G. Dauphin*
- 1445 Hierarchical-models in ecology: confidence intervals and hypothesis testing using data cloning *J. Ponciano, M. Taper, B. Dennis, S. Lele*
- 1500 Random effects quasi-likelihood population dynamics models based on proportion-at-age and removal data *V. Trenkel, M. Bravington*
- 1515 Towards reanalysis data sets of species abundance and occurrence *E. Loon, W. Bouten*

### Modelling Spatial Trends

- 1600 Developing models for the spatial distribution of lizard orchids (*Himantoglossum hircinum*) *D. Miller*
- 1615 Correction for radio tracking detection bias in estimation of resource selection functions *L. McDonald, R. Nielson, B. Manly, H. Sawyer*
- 1630 A general approach for modelling clustered line transect data, applied to a complex dataset *S. Hedley, M. Bravington, S. Wood*
- 1645 The use of DNA-profiles in studies of wildlife populations *H. Skaug*
- 1700 Climate and the range dynamics of species with imperfect detection *R. Altwegg, B. Erni, M. Wheeler*
- 1715 A moving average approach for spatial statistical models of stream networks *J. Ver Hoef*
- 1800 Conference banquet

## International Statistical Ecology Conference - Provisional Programme

### Friday 11 July

- 0915 Sampling processes, statisticians, and the growth of ecological knowledge, *Jim Nichols*, Wildlife Biologist, USGS, Patuxent Wildlife Research Center
- 1000 Designed experiments in mark-recapture, *Carl Schwarz*, Professor of Statistics, Simon Fraser University
- 1045 Coffee break

### Management, Conservation and Control

- 1115 The Rue of the 'Roo - A Bayesian model-based framework for monitoring and managing population control *Y. Chee, B. Wintle*
- 1130 The ecological drivers and consequences of West Nile virus in North America *S. LaDeau, C. Calder, P. Marra*
- 1145 Landfill sites are giant bird tables *A. Cook, S. Rushton, J. Allan*
- 1200 Optimal allocation of surveillance resources for pest management *C. Hauser*
- 1215 Optimal conservation decision-making using reinforcement learning *C. Fonnesebeck, J. Martin, J. Nichols, J. Hines, S. Chamaillé-Jammes, H. Fritz*
- 1230 Modelling habitat preferences of sea turtles *M. Sims, J. Roberts, P. Halpin*
- 1245 Lunch

### Monitoring Biodiversity

- 1400 Detecting declines in virtual bird populations using List Length Analysis *J. Szabo, P. Baxter, C. Wilcox, P. Vesik, Y. Carmel, H. Possingham*
- 1415 Sample size calculation for finding unseen species *H. Zhang, H. Stern*
- 1430 Design-based inference on species accumulation curves *L. Fattorini*
- 1445 Statistics and sea monsters *C. Paxton*
- 1500 Measuring variation of local biodiversity in space *J. Illian*
- 1515 Using presence data collected by the public to monitor interannual variation in population abundance *T. Snäll*
- 1530 Coffee break

### Survey Design and Analysis

- 1600 Developing fishery independent abundance indices of rarely encountered species: a new method of analyzing zero-inflated data *G. Ingram, Jr., C. Gledhill, W. Driggers, III*
- 1615 The implications of using animal signs that decay to determine species' presence/absence: a koala case study *J. Rhodes, D. Lunney, C. Moon, A. Matthews, C. McAlpine*
- 1630 Occupancy estimation within an adaptive sampling design: evaluation of an integrated estimator for rare or elusive species *K. Pacifici, M. Conroy, R. Cooper, J. Peterson*
- 1645 Searching for an environmental weed *M. Williams, J. Brown*
- 1700 Optimal designs for the multinomial mixture model: a power analysis *W. Challenger, C. Schwarz*
- 1715 Small-sample issues associated with fitting multilevel models using empirical Bayes methods *B. Gray*

### Stochastic Modelling of Animal Movement

- 1115 Modelling movement data with Bayesian state-space approaches *O. Ovaskainen*
- 1130 Invasion of the birdie-snatchers: a genetic case study of a historical island rat invasion *S. Miller, R. Fewster, H. MacInnes*
- 1145 Stochastic movement in heterogeneous environments *P. Blackwell, K. Harris*
- 1200 Bayesian analysis of the multimodal bird behaviour in orientation cage tests *K. Mus*
- 1215 Estimation and inference for locational data collected in studies of home range *B. Worton*
- 1230 State space model for light based geolocation *A. Nielsen, J. Sibert*

### Mark-Recapture

- 1400 Estimating stock proportions in Fraser River salmon runs *C. Huston*
- 1415 Residuals and goodness-of-fit testing for general open capture-recapture models *T. McDonald, E. Regehr*
- 1430 Age-specific estimation of demographic rates for animals of unknown age *E. Matechou*
- 1445 Dealing with complex variability in demographic traits using hierarchical Bayesian multi-state mark-recapture models *A. Calvert, I. Jonsen, J. Flemming, P. Taylor, S. Walde*
- 1500 Estimating exploitation rates using multi-state mark-recapture methods incorporating tag loss *L. Cowen*
- 1515 Abundance, mortality and population growth rate from successive aerial photographic surveys of bowhead whales with variable degree of marking: estimates and convergence rates *T. Schweder, D. Sadykova*

### Population Management/Abundance Estimation

- 1600 Bayesian parentage and dispersal estimation in Northern Red Oak (*Quercus rubra*) *E. Moran, J. Clark*
- 1615 Combining data from multiple sources to estimate catch at age, using a Bayesian hierarchical model *D. Hirst, G. Storvik, H. Rognbakke, M. Aldrin, C. Millar*
- 1630 Integrated analysis in fisheries stock assessment *M. Maunder*
- 1645 Tradeoffs or silver-spoons in silvereyes? *J. Knappe, N. Jonzén, M. Sköld, J. Kikkawa, H. McCallum*
- 1700 Challenges with using mark-recapture methods to estimate songbird abundance *D. Diefenbach, M. Marshall, G. Stauffer*
- 1715 Population estimation of Procellariiformes with minimal demographic information *P. Dillingham, D. Fletcher*
- 17.30 Conference ends

## International Statistical Ecology Conference - Posters

Multivariate analysis of rangeland vegetation in relation to edaphical and physiological factors

*S. Mohtasham Nia*

Automated survey design in Distance

*L. Burt, L. Thomas*

Estimation of abundance for patchily distributed populations via 2-stage, adaptive sampling

*M. Conroy, J. Runge, R. Barker, M. Schofield, C. Fannesbeck*

Multivariable analysis on the morphometry of *locusta migratoria*

*K. Djeddour*

Using the hierarchical partitioning public-domain software in ecology and conservation

*P. Olea*

A design-based approach to k-NN technique in forest inventories

*F. Baffetta, L. Fattorini, S. Franceschi*

Modelling the spatial distribution of water plants for a potential future development of an urban floodplain

*I. Baart, A. Blaschke, C. Haberer, S. Hohensinner, G. Janauer,*

*S. Preiner, W. Reckendorfer, T. Hein*

Confidence bounds for binomial rates when no events occur - inference from more than one set of observations

*I. Westbrooke*

Inner-border hypothesis: considering by a new point of view geographic openness of populations and its effects on closed capture-recapture methods

*S. Santoro, D. Iannuzzo*

Reproductive parameters and population viability of dugongs

*E. Burgess, J. Lanyon*

Can organisms continue to improve their performance after maturity? Testing whether post-maturational enhancement is a real evolutionary strategy

*M. Rebke*

Transition matrix analyses of a New Caledonian conifer, *Araucaria laubenfelsii*, following ten years of growth remeasurement

*L. Rigg*

Expected and observed spatial patterns of the genus *Phlomis* in Mediterranean Ecosystems of Crete (Greece)

*M. Bariotakis, L. Georgescu, E. Zouros, S. Pirintzos*

A quick method for incorporating variance uncertainty into power calculations

*M. Sims, D. Elston*

Now you see them...a study of tigers and their prey

*B. Morgan, M. Ridout, R. Borysiewicz, M. Linkie*

Developing monitoring methods for the Key Largo woodrat

*J. Potts, L. Thomas, S. Buckland*

Using Bayesian state space models of Northwest Atlantic Grey Seal population dynamics to estimate population size and optimal harvest strategies

*L. Thomas, M. Hammill, W. Bowen*

Estimating uncertainty in wildlife population estimates

*J. Brown, L. McDonald, T. Robinson*

The AD Model Builder Project

*M. Maunder, A. Nielsen, J. Sibert*

Estimating cetacean density from passive acoustic arrays

*T. Marques, L. Thomas*

Modelling the range of the Siberian marmot (*Marmota sibirica*) using maximum entropy (MaxEnt) and boosted regression tree (BRT): findings and comments

*S. Townsend, K. Didier*

Bias assessment in an ad-hoc adaptive marine mammal survey

*C. Donovan*

Distance sampling as a cost-effective approach to estimate deer populations: optimisation of study design at large scales

*V. La Morgia, S. Focardi, R. Calmanti, A. Calabrese*

Probabilistic reaction norms

*A. Kuparinen, R. O'Hara, J. Merilä*

Logistic regression modelling for determining child morbidity in slums in Greater Mumbai

*V. Sarode*

Plant biodiversity monitoring and ecosystem management : A case study in Zayanderood riverside

*H. Akkafi, H. Ejtehad, M. Noroozi*

The probable impact of climate change and atmospheric pollution on sugar maple populations, Lake Superior Provincial Park, Ontario, Canada

*D. Goldblum*

Integrated data analysis in the presence of emigration and mark loss

*T. Reynolds*

Importance of various data sources in deterministic stock assessment models

*A. Northrop*

Program Distance: Recent developments in analysis and design capabilities for plant and animal population estimation

*L. Thomas, E. Rexstad, D. Borchers, S. Buckland, J. Laake*

On the Bayesian estimation of a closed population size in the presence of heterogeneity and model uncertainty

*R. King*

Electronic data collection and processing to improve precision and accuracy of perpendicular distance estimation in aerial surveys

*M. Schnupp, F. Hernandez, R. Perez, F. Bryant, E. Redeker, D.*

*Rollins, L. Brennan, S. DeMaso, J. Sands, T. Teinert*

Application of mixed models analysis in litter decomposition assays

*L. Pla, F. Casanoves, J. Di Rienzo, R. Macchiavelli*

Factors affecting detectability of an endangered vulture

*P. Mateo Tomás, P. Olea*

Modelling alternating sequences of motion and pausing

*C. Müller, M. Christman*

Heterogeneity in Integrated Population Modelling

*P. Besbeas, B. Morgan*

Goodness-of-fit statistics as measures of biodiversity

*S. Buckland, A. Studeny*

WiSP package as a study design tool for abundance estimation

*E. Rexstad, D. Borchers, W. Zucchini, D. Adler*

Modelling the survival of Bighorn Sheep

*L. Oliver*

Distance sampling with measurement errors

*D. Borchers, T. Marques, T. Gunnlaugsson, G. Vikingsson*

Canonical correspondence analysis between phytoplankton community and environmental factors in winter and summer in shallow lakes of plain river network areas in Suzhou, China

*X. Shi, X. Ruan*

Spatially adaptive regression splines using a heuristic algorithm

*M. Mackenzie, C. Walker, C. Donovan, M. O'Sullivan*

A generalised linear modelling approach to examining songbird population changes in the U.K

*E. Rexstad, S. Newson, S. Baillie*

Estimating the abundance of whales using information from sparse arrays of sea-bed mounted hydrophones

*D. Harris*

Constructing a Bayesian state-space model of the population dynamics of British Song Thrushes

*S. Baillie, L. Thomas, R. King*

Separating occupancy and use with multi-scale occupancy models

*R. Mordecai, B. Mattsson, R. Cooper*

Modelling Scottish fish discards at the haul level

*C. Millar, R. Fryer, D. Hirst*

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NCSE was set up in October 2005 as a joint venture between the Universities of Kent, Cambridge and St Andrews, with funding from the EPSRC. Its objectives include:

- To be a Centre of international repute for the development and application of novel statistical methods in population ecology, integrating the partner Universities' research programmes and activities in statistical ecology.
- To develop novel statistical methodology for the analysis of complex data sets arising in ecology and to apply these methods to a broad collection of topical and important data sets.
- To train PhD and postdoctoral researchers to work as statistical ecologists.
- To develop a computer software system to enable ecologists to use cutting edge statistical methodology on their own data.
- To train end-users in the use of methodology and accompanying software developed by NCSE.
- To build upon and create new collaborations with relevant stakeholders.
- To develop and deliver a programme of workshops and conferences.



## Snippets!

### Movements:

Diana Cole has been appointed to a lectureship in Statistics at the University of Kent. Diana will continue to be involved in the research of the NCSE, in particular in developing new methods in parameter redundancy, and is currently working on updating the web-site.

Vanessa Cave has transferred from the University of Cambridge to the University of St Andrews to complete her PhD studentship, working with Ruth King and Stephen Freeman in the area of Integrated modelling of bird populations.

Chris Lynam, formerly a member of NCSE based at St Andrews, has taken up a position at the Irish Marine Institute research station in Galway.

Stephen Freeman has left the British Trust for Ornithology after 10 years and is moving to the Centre for Ecology and Hydrology in Wallingford.

Eleni Matechou has transferred from the Max Planck Institute of Demographic Research in Rostock, Germany, to the University of Kent. Her supervisors are David Thomson and Byron Morgan and she has spent the first eighteen months of her PhD in Germany, working on models for age-determination in capture-recapture studies. Eleni has been working with Shirley Pledger, an associa-

tion which will be renewed when Shirley visits Kent in the summer.

### Congratulations to:

David Revell, who has successfully completed his PhD entitled *Statistical analysis of bird populations* at the University of Kent.

Byron Morgan, who has been elected incoming Regional President of the British and Irish Region of the International Biometric Society.

David Elston, who has been made an honorary professor at the University of St Andrews.

Tim Coulson on becoming Professor of Population Biology at Imperial College. Tim's inaugural lecture, entitled *Counting sheep, evolution and ecology on St Kilda*, took place on 12th March 2008.