GROUSE NEWS

Newsletter of the WPA/BirdLife/IUCN/SSC Grouse Specialist Group

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Contents

The 11th grouse symposium held in Whitehorse, Yukon Territory, Canada in September was very successful. A total of 87 contributions where accepted with 60 oral and 27 poster presentations. Demography, population dynamics, genetics, systematics, ecology and management of grouse occurring in 18 countries were the topics dealt with. Participants from Asia, Europe and America had found their way to Whitehorse and the conference. Thanks to Kathy Martin and co-operators for an excellent job planning, organizing and running this conference. After the conference in Whitehorse in Canada in September Grouse Specialist Group have got many new members.

However, a sad message reached us at the conference. Esa Ranta should attend the conference but he died a few days before the start of the conference. His fields of interest covered all the aspects in ecology, and in the last years he was most interested in game species, especially in grouse. In this issue there is an obituary of this exceptionally productive scientist.

At the Grouse Specialist Group meeting during the conference the future of the group was discussed. The minutes of this meeting are found under news from GSG. At this meeting it was also decided that the 12th International Grouse Symposium in 2011 should be held in Japan. Professor Hiroshi Nakamura from Shinshu University in Nagano will be organizing this symposium.

In this issue of Grouse News you will find interesting information on conservation and management of black grouse and capercaillie in Scotland. A research report on how to develop a method to obtain unbiased estimates of male sage-grouse abundance for a population using lek count data is published. Also an article of release of wild capercaillie in eastern Germany of birds from Russia is published. The 11th Grouse Symposium in Whitehorse is summarized in the conference chapter. Under snippets you will find information on a new PhD thesis from Finland dealing with the possible impact on grouse by raptors.

Two new books have been published. Adam Watson and Robert Moss have published a book on grouse mainly dealing with the birds in Scotland, England and Ireland. Yue-Hua Sun, Siegfried Klaus and others have published a popular book dealing with the nature of the little-known Lianhuashan Natural Reserve in the Lianhua Mountains in southern Gansu Province in Northwest China.

We are still working hard to get enough contribution for each issue of Grouse News. It is you as members of GSG and subscribers which are the key to the success of Grouse News in the future. Therefore I encourage all of you to write. All kinds of contributions are welcome. If you wonder what and how to write, just take a look at earlier issues and you will get an idea.

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From the Chair

Just a few weeks have passed since many of us met at the International Grouse Symposium in Whitehorse (see IGS report on p. 22). For me, the major themes of the IGS were "change" and "uncertainty". Grousers from around the globe reported signs of fundamental and accelerating changes in grouse ecosystems. Population cycles disappear, hatching dates mismatch rearing conditions, nitrogen deposition favours vegetation unsuitable for grouse. It has become evident that global environmental change uncouple species-habitat associations that we had long believed to understand. There was a lot of doubt among the IGS participants how we in our individual jobs, and also as the GSG as a whole, possibly can counteract these new conservation threats.

So far, the weight of the GSG in conservation has been limited. As I reported in the last issue of GN, there is a growing discrepancy between expectations from IUCN-SSC (increasingly asking for conservation action), and the performance the GSG can realistically achieve under the status quo of a 100% voluntary network without any resources. At the IGS, the GSG held a meeting to discuss the way ahead (see IGS report on p. 4) which ended in favour of a suggestion to form a single Galliformes Specialist Group by joining the existing 4 groups: grouse, pheasants, megapodes, and partridge-quail-francolin. The major reasons were that a Galliformes Specialist Group might have greater weight in conservation and provide a better representation of all threatened galliformes and their habitats than would the sum of the existing 4 SGs, and because funding would be more readily available and, with the help of WPA, a paid programme officer would be easier to realise for "Galliformes", a group with many threatened species primarily in developing countries, than for "Grouse" alone, a group that has few threatened species that all occur in more wealthy parts of the world. However, Grouse SG members made it clear that they wish to maintain the "Grouse identity" of the present GSG.

In the meanwhile, a new IUCN quadrennium has started with the World Conservation Congress in Barcelona in October, and the Species Survival Commission of the IUCN got a new Chair, Simon Stuart, who will set up office in the UK. First conversations on the future of the Galliformes SGs have been held between WPA and SSC, who appear to be sympathetic of the idea to join forces into a single Specialist Group, which would be strongly supported by WPA. Final decisions are to be expected for early 2009. I will keep you informed.

I wish you happy holidays and a good start into a New Year full of grouse.

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NEWS FROM GSG

Grouse Specialist Group Meeting

Minutes of meeting at 11th IGS, Whitehorse, Canada, 14 September 2008

Agenda

1. Grouse Specialist Group – review of status, affiliations and mission
2. Report on activities 2005-2008
3. Future of the GSG
4. 12th IGS in 2011 and 13th IGS in 2014

The meeting was attended by 60-80 IGS participants and GSG members.
Organizer and minutes: Ilse Storch, GSG Chair.

1. Grouse Specialist Group – review of status, affiliations and mission

The Grouse Specialist Group (GSG) is a global voluntary network of persons involved professionally in the study, conservation, and sustainable management of grouse. The group is particularly concerned with the conservation of threatened grouse species and subspecies, and in seeking ways to maintain viable populations in their natural habitats. The GSG collects and assesses information, identifies conservation priorities, promotes research and conservation, and gives advice on grouse and their habitats. The GSG is headed by a chairman (appointed by IUCN/SSC upon WPA's suggestion) and a committee and operates according to IUCN principles. Its members are persons actively involved in research and/or conservation of grouse according to professional standards. The GSG's mission is consistent with the aims of its parent bodies: ***The GSG is committed to understanding and securing viable populations of all species and subspecies of grouse in their natural habitats.***

The GSG operates under a Memorandum of Understanding between the International Union for Conservation of Nature IUCN and the World Pheasant Association WPA. It is therefore named the **WPA – IUCN/SSC Grouse Specialist Group**. The convention is to list the parent organisations in the reverse order to ensure consistency of appearance to the outside world. Under this MoU, the SSC Chair's office and WPA's Director are the first points of contact with IUCN for all the Galliformes SGs. The GSG was officially founded in 1993. By early 2008, the GSG had 129 registered members from 29 countries in Eurasia and North America. The tasks of the GSG, and its members, as defined by IUCN/SSC are:

- Networking: maintaining effective membership
- Grouse status assessments and threat identification
- Compiling Action Plans and publishing newsletters
- Organizing meetings, symposia, and workshops
- Contributing to SSC policy guidelines
- Contribute to conservation debates
- Promote and implement conservation action
- Fund raising

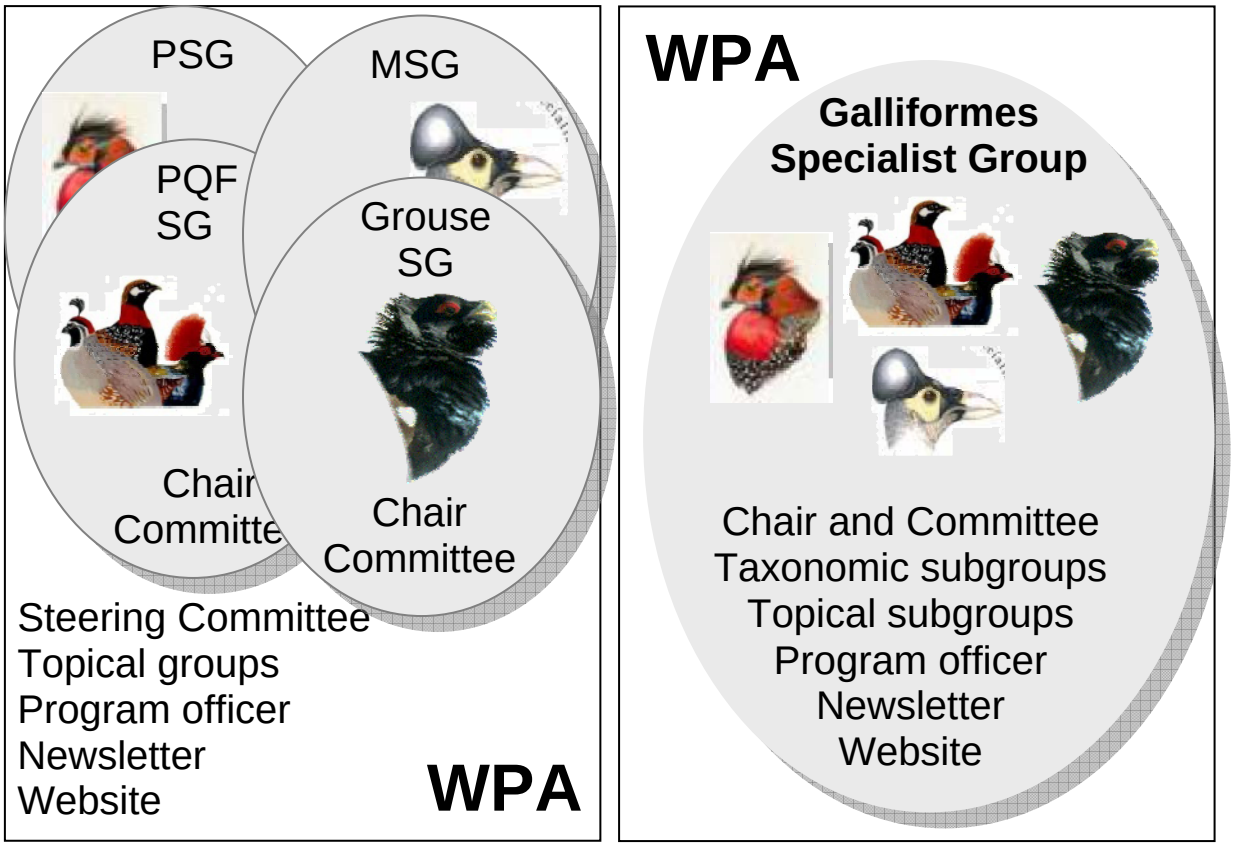
2. GSG Report 2005 – 2008

- Membership stable at ~130 from 30 countries
- Genetics and Conservation management teams formed
- Website extended (bibliography) http://www.gct.org.uk/gsg/
- Grouse News published twice a year http://www.gct.org.uk/gsg/newslett.htm
- IGS10 papers published in WB http://www.wildlifebiology.com/Indices/2007+-+volume+13/Issues/Suppl.+1/View.aspx
- Grouse Action Plan revision published, http://data.iucn.org/dbtw-wpd/edocs/2007-034.pdf
- *T. u. cantabricus* assessed as EN, http://www.springerlink.com/content/w2033v356tm347j4/fulltext.pdf
- Projects on CBG progressing (see Grouse News)
- Consulted on projects in SE Europe (see Grouse News)
- Participated SG-Chairs' meeting 2008, http://www.iucn.org/about/work/programmes/species/about_ssc/ssc_chairs_meeting/index.cfm
- Featured at IUCN Congress 2008, http://www.iucn.org/news%5Fevents/events/congress/

3. Future of the GSG

In May 2008 the Galliformes Specialist Group (Grouse SG, Megapode SG, the Pheasant SG and the Partridge, Quail and Francolin SG) Chairs and Co-chairs sent out a letter (see Appendix 1) to members of each of the four Groups to ask for opinions on the way ahead. This letter was based on the feeling that there is a growing discrepancy between expectations from IUCN-SSC (increasingly asking for conservation action), and the performance we can realistically achieve under the status quo. Members were invited to comment; the results of this consultation were collected and synthesized by Phil McGowan, Director of WPA (see Appendix 2). Three late comments that were critical of the suggested Galliformes SG were not included in App. 2, but were considered during the meeting.

At the meeting, the background (Appendix 1) and the results of the consultation process (Appendix 2) were reported by GSG Chair Ilse Storch and WPA Director Phil McGowan. As a way forward, two options were discussed: a) keep SGs separate (status quo) but eventually pool resources with the other SGs (left option in illustration below) and b) form a single Galliformes Specialist Group (right option in the illustration below).



After lively discussion, a minority (about 1/3 of about 40 votes) of the GSG members present favoured separate SGs, while the majority (2/3) were willing to support the suggestion of a Galliformes Specialist Group. The major reasons were that a Galliformes Specialist Group might have greater weight in conservation and provide a better representation of all threatened galliformes and their habitats than would the sum of the existing 4 SGs, and because funding (with the help of WPA) would be more readily available and a paid programme officer would be easier to realise for "Galliformes", a group with many threatened species primarily in developing countries, than for "Grouse" alone, a group that has few threatened species that all occur in more wealthy parts of the world. However, Grouse SG members made it clear that they would only support a Galliformes SG if a strong sub-structure of a future Galliformes SG was installed that would allow maintaining the "Grouse identity" of the present GSG. To achieve this, it was felt important to maintain separate leadership, a separate Grouse Group website, the newsletter Grouse News, and the triennial International Grouse Symposia. Grouse SG members also suggested to review the success of the new Galliformes SG at the next IGS (2011) and keep the option to go back to separate SGs after the end of the next quadrennium if the expected improvement of the funding situation has not become reality.

4. 12th IGS in 2011 and 13th IGS in 2014

During the 10th International Grouse Symposium in 2005, Georgia (depending on political situation) and Switzerland were identified as possible locations, with Scotland as a possible reserve.

At the meeting, invitations were received from Japan and the UK. A clear vote brought a decision for the 12th IGS 2011 to take place in Japan. Host and organizer is Prof. Hiroshi Nakamura (hnakamu@gipnc.shinshu-u.ac.jp) from Shinshu University in Nagano. He is also the President of Ornithological Society of Japan and the Chairman of the Japanese Rock Ptarmigan meeting. The symposium will probably take place in late July – early August 2011.

Georgia (depending on political situation) and the UK were identified as candidate locations for the 13th IGS in 2014.

Appendix 1: Letter to GSG members, May 2008

Dear members of the Grouse Specialist Group,
I am writing to ask for your opinion on some proposals for the future of our Specialist Group, as we near the end of another 4-year period (quadrennium) of activity under IUCN/SSC. This formally ends with the dissolution of the SSC at the upcoming Barcelona World Conservation Congress in October 2008. After this, the SSC is gradually reconstituted for the next quadrennium, starting with the election of the Chair at the meeting itself. In past cycles, The World Pheasant Association (WPA), as our other parent body, has by this point made recommendations to IUCN about who should be the next set of Chairs or Co-Chairs for all the WPA/SSC Specialist Groups for the Galliformes species (including the Grouse SG, the Megapode SG, the Pheasant SG and the Partridge, Quail and Francolin SG and formerly also the Cracid SG).

In mid-February, all the current Chairs of these SGs were invited to Al Ain in the Gulf States by the current SSC Chair, Holly Dublin, to attend a meeting of all the world's SG Chairs. Phil McGowan (Director of WPA) was also there. We took this as a chance to review how we had been performing since 2005, when we were last appointed (or re-appointed). Whilst we can justifiably claim to have operated extremely well up to around 2005 across all our Specialist Groups, our overall performance more recently has been less good:

- Only the Grouse SG recently produced a new Action Plan and has put out its Newsletter regularly since 2005
- The Megapode, Pheasant and PQF SGs have all failed to renew their Action Plans and have had trouble producing their Newsletters.
- Some of our websites are also looking old and uncared for (possibly along with some Chairs and Co-Chairs!)
- There is no longer an SSC/WPA Cracid SG

So an action plan is now needed to revitalise the Galliformes Specialist Groups! All the SGs depend on the efforts of too few people, several of whom are now too busy to run their core functions properly. So unless we do something soon, our precious threatened species may fade from the conservation radar screen, and all the good that has come from our technical advice and training work world wide may begin to dissipate. Over the recent period of decline in SG activity, WPA has grown in stature as a player on the international conservation stage, largely due to Phil McGowan's remarkable work, first as Conservation Director and more recently as (Executive) Director. WPA now runs a substantial portfolio of projects in its own right, usually with technical advice from the SGs.

Our recent experience at the SG Chairs' meeting reinforced very strongly something that several of us already knew. It is very evident that many of the most effective SGs in the SSC network have a close relationship with a professional or charitable organisation that exists at least partly to support its work. So one possible way forward for us, following this proven model, is to pool our human resources into one large Galliformes SG, strongly supported by WPA. The gains to be had from such an arrangement would seem to include:

- Collective experience of running SGs as 'voluntary self-help networks' can be pooled, and the essential tasks can be shared more widely;
- Pooling research experience on determining species status, measuring threats and designing and implementing conservation action;
- Allowing the inclusion of Tinamous in our remit alongside other Latin American species;
- Maximising the chance of raising funds to employ a single Support Officer to provide the focus and dedication needed to operate the SG effectively, whilst liaising continually with WPA;
- Distributing good (and bad) conservation news via one Newsletter;
- Simplifying our relationship with SSC as our other parent body, as well as the thematic SGs (e.g. Re-introductions, Conservation Breeding), the IUCN Species Programme, BirdLife International as the Red List Authority for all birds, and CITES on concerning threats through trade.

A compromise of both structure and function, lying somewhere between the Galliformes SG idea and the present situation with 5 separate SGs (Grouse SG, Megapode SG, Pheasant SG, the Partridge, Quail and Francolin SG, Cracid SG), is also possible. This might have a central hub close to WPA, and a global steering committee consisting of taxonomic, regional and thematic representatives. This would allow some or even all of the existing taxonomic groupings to continue under a larger umbrella, so that members with very focused interests do not feel swamped in such a large group.

The meeting that we all just attended emphasised how difficult it is for the IUCN Species Programme to support our SG activities (or even SSC core functions) in any meaningful way. This is its formal role, but funds are hard to come by, and it has the SSC Chair and c.130 SGs to assist. Even without much

concrete help, however, we gain great influence from being in the SSC network under IUCN: this truly is the United Nations of Conservation.

In exchange, however, there is an increasing expectation from SSC that each of its SGs' activities should contribute to the three main objectives set out in the current SSC Strategic Plan (2001-10):

- Conducting the interdisciplinary scientific work necessary to underpin effective conservation action;
- Addressing over-exploitation issues via well-founded sustainable-use programmes;
- Developing global capability for conservation research and action through capacity building and technology transfer.

The increasing emphasis on action is embodied in SSC's future expectations of 'action plans': they are now being labelled Species Conservation Strategic Plans, and as such are expected to be comprehensive and result-orientated. We live in a threatened and rapidly changing world: more than ever, we need to work in close concert with all others sharing our concerns and expertise. For the individual, being a member of a busy, efficient and effective SG seems to be the best way of contributing to the global effort to conserve biodiversity.

Having read what I have had to say above, I would like to hear your views on how you see the future. I hope that other promising ideas will come from you and help us all to achieve our ultimate aim: running an effective network dedicated to saving our species from extinction. We are all volunteers, so we have to reach broad agreement on how to move forward and then abide by it. Please do give the matter some thought and reply soon: we have asked WPA to receive the replies in confidence, so that all views, including any on the conduct of the current Chairs, can be considered objectively and a fair consensus reached.

Please send your replies to Philip McGowan at director@pheasant.org.uk as soon as possible, and in any case no later than **Monday 26th May 2008**.

Ilse Storch
Chair, Grouse Specialist Group

This text was drafted cooperatively by the current Chairs and Co-Chairs of the SGs for the Galliformes species, and is sent out to all members of these SGs.

Appendix 2: Summary of response to SG consultation process
by Phil McGowan, WPA, July 2008

Future of the Galliformes Specialist Groups

In early May the Galliformes Specialist Group Chairs and Co-chairs sent out a letter to members of each of the four Groups to ask for opinions on the way ahead. This letter was based on the feeling, shared by all six Chairs and Co-chairs that the SGs were becoming less effective than in the past. They felt that they were struggling to deliver and did not see things improving under the status quo. The result of their discussions was that they felt pooling all available resources and experience into one single Galliformes Specialist Group was certainly one way to improve things. The letter sent to the Pheasant SG is appended to show what members of the four SGs received.

The letter requested that comments be sent to Philip McGowan at WPA by the end of May. Altogether, thirty-four comments were received. Some expressed a clear view on the suggestion of a single group, whilst others chose to make their own observations on either the current position or offered ideas on particular aspects.

In trying to structure the diverse opinions, we have assessed the feedback at two levels. First, we have identified where there are clear views on the structure that might be employed. Second, we have sought to 'capture' every single comment that has been made so that no thoughts or suggestions are lost. Therefore, these should be read in the context of the overall views on the structure.

1. Structure

Keeping the current structure: 2 SG members suggested this.
Comments associated with these responses were:

- The 'burden' would be too great for one Galli SG;
- Members of one big group would feel isolated (ie small fish in a big pond); and
- There are too many species for one single group to be responsible for.

A Galliformes SG as an umbrella for taxonomic focal points/subcommittees: 18 members suggested this.
Comments associated with these responses were:

- Would be able to seek common conservation solutions across species, landscapes, regions and other SGs;
- The current separate SGs place too much work on too few people;
- Would allow the employment of an officer to work for the Galli SG;
- Would allow officers to be nominated for each taxonomic group/subcommittee, or other similar divisions such as Old World and New World;
- Project work may eventually suffer if the separate SGs are kept as they are;
- Information and expertise will be easier to share across SGs;
- One Galli SG could increase awareness and impact of the SGs in USA;
- Having a subcommittee within the one SG will make sure the identity and research foundations of the individual groups is not diluted, and will allow the work to be more spread throughout the subcommittee;
- Will allow time and resources to be pooled;
- Concerns over what exact support WPA could provide to one super SG; and
- Concerns that certain groups (e.g. megapodes) will be swamped by others.

One super Galliform SG: 6 members agreed with the proposal with no further comment (as above).

Not obvious/no opinion: 8 members felt that they knew too little of the workings of the SGs to offer an opinion or were happy for others to make the decision.

CONSERVATION NEWS

Black grouse trial management project

James Gordon

The trial management project was set up in 2006, to investigate how planted forests can be improved for black grouse. Two contrasting sites (in Galloway Forest Park and Fort Augustus Forest District) were chosen. They represent areas with a declining and a stable black grouse population and include examples of clearfell and continuous cover systems. The focus is on landscape-scale management at a metapopulation level, targeting groups of adjacent lek ranges.

Planted, non-native conifers (mainly Sitka spruce and lodgepole pine) provide habitat for black grouse in Scotland, especially at the interface with adjacent open ground. However, while young forests afford high quality habitat, they become less suitable following canopy closure, when the field layer is shaded out, internal open space becomes fragmented and black grouse numbers start to decline. Young second rotation forestry can also provide temporarily suitable habitat.

Baseline monitoring was undertaken in 2007 and the first phase of management work took place in winter 2007-08. It is intended to investigate the impact of measures such as manipulating the size and location of clearfells, lengthening the fallow period before restocking (to allow more time for the field layer to develop), increasing the area and connectivity of internal open space, restructuring forest edges and low-yield crops, and various types of field layer management (cutting, burning, cattle grazing).

Monitoring involves annual lek surveys, assessment of vegetation response to management regimes, brood searches (to identify favoured habitats) and assessment of predator pressure. Recent forest management history will also be analysed.

Outputs from the project will inform the development of management prescriptions for other sites on the national forest estate. They will also assist improvement of funding options in the new Scottish Rural Development Programme, which contains a dedicated package of measures to benefit black grouse on private land in both woodland and open ground habitats.

The project is a partnership between RSPB Scotland, Forestry Commission Scotland and Scottish Natural Heritage.

***James Gordon** has been Woodland Grouse Project Manager with RSPB Scotland since March 2008 and joined the GSG in autumn 2008. He worked on capercaillie with Kenny Kortland in 2004-2006, before moving on to set up the black grouse trial management project. He continues to lead on the trial management project and is involved with advisory work on black grouse and forestry, as well as working closely with Tim Poole on capercaillie.*

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Ongoing management for capercaillie in Scotland

Tim Poole

Considerable effort has been expended over the past ten years to reverse the large-scale population decline of the capercaillie in Scotland. A European Union LIFE project (http://ec.europa.eu/environment/life) 'Urgent Conservation Management for Scottish Capercaillie' provided funding for large-scale management throughout the capercaillie range. Estimates from national surveys before and during the project indicate that the decline has been halted (Eaton *et al*, 2007).

It is essential to continue this work if the capercaillie is to survive in Scotland. For example, although more than 350km of deer fence have been removed and 173km have been marked within the core range since 1999, many potentially harmful fences remain, including 25km of unmarked deer fences within 1km of active leks.

The Species Action Framework (SAF: http://www.snh.org.uk/speciesactionframework/default.asp) has been developed by Scottish Natural Heritage (SNH) to target management for 32 priority species, including capercaillie and black grouse, over a five year period. SNH funded £120,000 of management through SAF in 2007/08, including deer fence marking and removal, repairing stock fences, thinning plantation forest, cutting rank vegetation and blocking drains on forest bogs. A further £60,000 has been committed for action over the winter of 2008/09. The implementation plan is summarised as follows:

- Reduce fence mortality by removing or marking 40km of high-risk deer or stock fences
- Create 2000 ha of brood habitat
- Improve 3500 ha of brood habitat
- Update guidance documents
- Promote uptake of government Rural Development Grant scheme
- Establish targeted, lek-specific fox & crow control on up to 50 private sector sites and on the national forest estate
- Encourage suitable capercaillie measures in private forest plans

The Scottish Rural Development Programme (http://www.scotland.gov.uk/Topics/Rural/SRDP) is a combined environmental and social development grant scheme. Capercaillie is a priority species, for which funding is available through a dedicated package of management actions. Collaboration is encouraged between adjacent landholdings and, where possible, joint schemes are developed for capercaillie and other priority species, such as black grouse.

The Capercaillie Project Officer is funded by RSPB Scotland, Forestry Commission Scotland and Scottish Natural Heritage.

Reference

Eaton, M.A., Marshall, K.B. & Gregory R.D. 2007. Status of Capercaillie *Tetrao urogallus* in Scotland during winter 2003/04. *Bird Study*, **54:** 145-153.

*As noted in the May 2008 Grouse News, **Tim Poole** took over from Kenny Kortland as Capercaillie Project Officer in January. His main task is to offer free management advice to forest owners and managers across the Scottish capercaillie range. He is Secretary of the Capercaillie Biodiversity Action Plan Steering Group and advises government agency staff on capercaillie issues. Tim joined the GSG in autumn 2008.*

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RESEARCH REPORTS

Assessing greater sage grouse lek attendance: a preliminary report

J. A. Baumgart, J. W. Connelly, E. O. Garton, D.D. Musil, & K. P. Reese

Introduction

Recent trends indicate that populations of greater sage-grouse (*Centrocercus urophasianus*) are generally declining throughout their range (Connelly et al. 2004). Schroeder et al. (2004) estimated that the range of sage-grouse has shrunk to approximately 56% of the presettlement distribution. While the indices used to assess these trends are somewhat crude due to the nature of historical data and inconsistency in monitoring methods, these results are cause for alarm and justify more intensive investigation.

The mating strategy of sage-grouse offers a convenient opportunity to observe and count individuals that congregate on breeding grounds or leks (Jenni & Hartzler 1978, Connelly et al. 2003). Due to the conspicuousness of displaying males and lack of cover that is typical of leks, these congregations are relatively easy to locate (Schroeder et al. 1999). Moreover, lek sites are usually traditional and persist for long periods of time (Dalke et al. 1963).

Lek routes presently provide the best index to breeding population levels throughout much of the specie's range (Connelly et al. 2000). The current method for conducting a lek route includes locating all or some portion of the leks of a breeding population visually from low-flying aircraft or from the ground, identifying groups of leks for developing lek routes, then revisiting each lek within a route at least 4 times throughout the spring to count the number of males present (Connelly et al. 2003). Trends are assessed by calculating the greatest number of males counted on a single visit across all leks within a route, for multiple years.

Because lek counts and lek routes may not be representative of the entire population of interest, alone they simply provide an index to breeding population levels. Although congregations of breeding sage-grouse offer easy counting of individuals, leks may not be random subsets of the population. Yearling and adult males may not be attracted to the breeding grounds in proportion to their actual ratio, and females spend much less time on leks than males do (Dalke et al. 1963, Jenni & Hartzler 1978, Emmons & Braun 1984, Walsh et al. 2004). Furthermore, not all birds attending a lek during a lek route census are necessarily going to be observed and recorded. Size, behavior, and location within the lek, as well as qualities of the lek and relative location of the observer may all affect sightability of the attending birds by an observer. Because of these issues, reliable population estimates resulting from a lek route would likely be biased and using lek counts to estimate numbers of male sage-grouse is of little use as no valid technique exists to assess precision of such estimates (Anderson 2001).

Using uncorrected counts as an index may also be somewhat unreliable because counts are contingent upon the following assumptions: 1) the sample is proportional to the population; 2) the proportion remains constant among years when trends are estimated; 3) the proportion remains constant among sites where relative abundance is to be compared; and 4) the detection probability is the same for all observers (Anderson 2001, White 2005). Despite stringent guidelines for conducting lek routes (Connelly et al. 2003), these assumptions may not be realistic. Nichols (1992) stated that detection probabilities vary over time and space due to factors beyond our control. Further, if these assumptions are not verified, there is a risk of reporting highly biased results (White 2005). Given these issues, we have initiated research to address: 1) how the probability of attending a lek differs among adult and yearling male sage-grouse; 2) how and what biological factors affect these probabilities; and 3) what is the sightability of birds attending leks, and what variables affect it. With this information we then intend to develop a method to obtain unbiased estimates of male sage-grouse abundance for a population using lek count data.

Study Area

Our research is being conducted in southern Twin Falls County (42° 12' N, 114° 44' W), in south central Idaho, USA. This area receives approximately 24 cm of precipitation annually and ranges in elevation from 1524 m to 2300 m. The major cover types include low sagebrush (*Artemisia arbuscula*) /black sagebrush (*A. nova*) /grass, Wyoming sagebrush (*A. tridentate ssp. wyomingensis*)/grass, mountain sagebrush (*A. tridentate ssp.vaseyana*)/grass, mountain shrub, and crested wheatgrass seedings (*Agropyron cristatum*) (Hironaka et al. 1983). Livestock grazing is the most common land use for the entire study area.

In 2006 and 2007, we used a total of 9 leks for this study. In 2008, we included an additional 5 leks located just north of the original study leks. Data collected in 2007 indicated that some birds comprising

the winter population of our study area move large distances throughout the year (over 30 km) and may be migratory (Connelly et al. 2000).

Methods

Field Techniques

Male sage-grouse were captured using spotlighting techniques (Connelly et al. 2003) during winter and classified by gender and age using wing characteristics (Dalke et al. 1963). We attempted to capture and fit birds with 16.5 g necklace style radio transmitters (Advanced Telemetry Systems, Isanti, Minnesota) relatively early in the winter (mid-January) to minimize their potential association with a particular lek as the mark-resight method we used to estimate detection probabilities relies on the assumption that samples (marked individuals) are randomly selected.

We spent the early morning hours of mid-March searching for previously unrecorded lek locations. We visited all suspected breeding habitat within the study area and listened for sounds of strutting males as per Connelly et al. (2003), and located radioed males.

Lek routes were conducted for 9 consecutive weeks each year beginning between 17 and 20 March. Leks were counted from 0.5 hours before to 1 hour after sunrise when weather conditions were clear to partly cloudy and there was little to no wind (Connelly et al. 2003). In this manner, it was possible to visit 2 to 3 leks per day, allowing 15 minutes at each lek, and approximately 15 minutes to travel between leks. A resighting occasion is defined by all leks within our study area being visited exactly once and we completed one resighting occasion per week for a total of 9 resightings each year.

Lek routes were conducted by 2 researchers, each equipped with a telemetry receiver and spotting scope. Both individuals approached each lek at approximately a 90-degree arc from each other, being extremely cautious not to flush birds. Upon arriving at a predetermined position that allowed good visibility of the entire lek, the primary observer counted total number of male sage-grouse attending according to the protocol by Connelly et al. (2003). Both researchers then scanned through the list of frequencies of radioed birds using hand-held three-element, null-peak yagi antenna systems, noting signals strong enough and in the general direction that would indicate positive lek attendance. We used predefined compass bearings to delineate the "edge" of the lek relative to each observation point for all leks. We recorded date, weather conditions, starting time, observer location, and observer's name for each count, and number and identity of radioed birds determined to be on the lek during a lek count. If direction and signal strength from both positions indicated the bird was likely on the lek, the bird was assumed to be attending. Researchers then moved to the next lek and repeated these steps.

For each day we conducted lek routes in 2007 and 2008, observations were also made from a stationary blind on a subset of our study leks to assess sightability of birds. We positioned blinds within 20 m of the edge of the leks within sagebrush to minimize potential effects the introduced structure may have on the birds' behavior. On the day of the lek count, a single observer entered the blind 2 hours before sunrise to minimize flushing birds. When visibility was sufficient to see birds on the lek, but no later than 0.5 hours before sunrise, each observer conducted a count of males and females visiting the lek. We recorded the following data: observer's name, date, general weather conditions, time of each count, and number of each segment of the population observed. Counts were repeated every 15 minutes until all birds had left the lek.

Analysis

Using mark-resight techniques, we used the Recaptures Only model in Program MARK (White & Burnham 1999) to estimate the probability of attending a lek for male sage-grouse from a relatively discrete breeding population. Program MARK allows the modeling of detection probabilities with group-specific, time-specific, and individual-specific covariates, which can greatly improve the precision of the estimates (White 2005). We included year, age (yearling or adult), and time (Julian date), which we allowed to vary unconstrained and also fixed to a linear and a quadratic trend. Using the global model of year, age, unconstrained time, and their interactions, we used bootstrapping to test for goodness of fit. We used Akaike's Information Criterion (AIC) adjusted for any overdispersion and small sample sizes for model selection and all parameter estimates were generated using model averaging based on AIC weights (Burnham & Anderson 1998).

Results

The samples for our mark-resighting included 17 adults and 3 yearlings in 2006, 16 adults and 3 yearlings in 2007, and 30 adults and 4 yearlings in 2008. Over the 9 resighting occasions each year, we re-observed a total of 111, 105, and 228 marked birds in 2006, 2007, and 2008 respectively. The bootstrap goodness-of-fit test showed our global model was a good fit to our data with only slight overdispersion (c-hat = 1.35). The top model chosen by AIC model selection procedures was the additive model that

included age, year, and a quadratic time trend (Table 1). Including the interaction term year * time resulted in a QAICc of 0.274, indicating that this model was equally parsimonious.

Table 1. Five best fit models predicting the probability of male sage-grouse attending leks. QAICc is the quasi AIC corrected for overdispersion and small sample sizes. k is the number of parameters in each model.

Model	QAICc	Δ QAICc	QAICc Weight	k
Age + Year + t^2	574.872	0	0.322	6
Year * t^2 + Age	575.146	0.274	0.281	10
Age * t^2 + Year	577.071	2.199	0.107	8
Year + t^2	577.424	2.552	0.09	5
Year * t^2	577.748	2.876	0.077	9

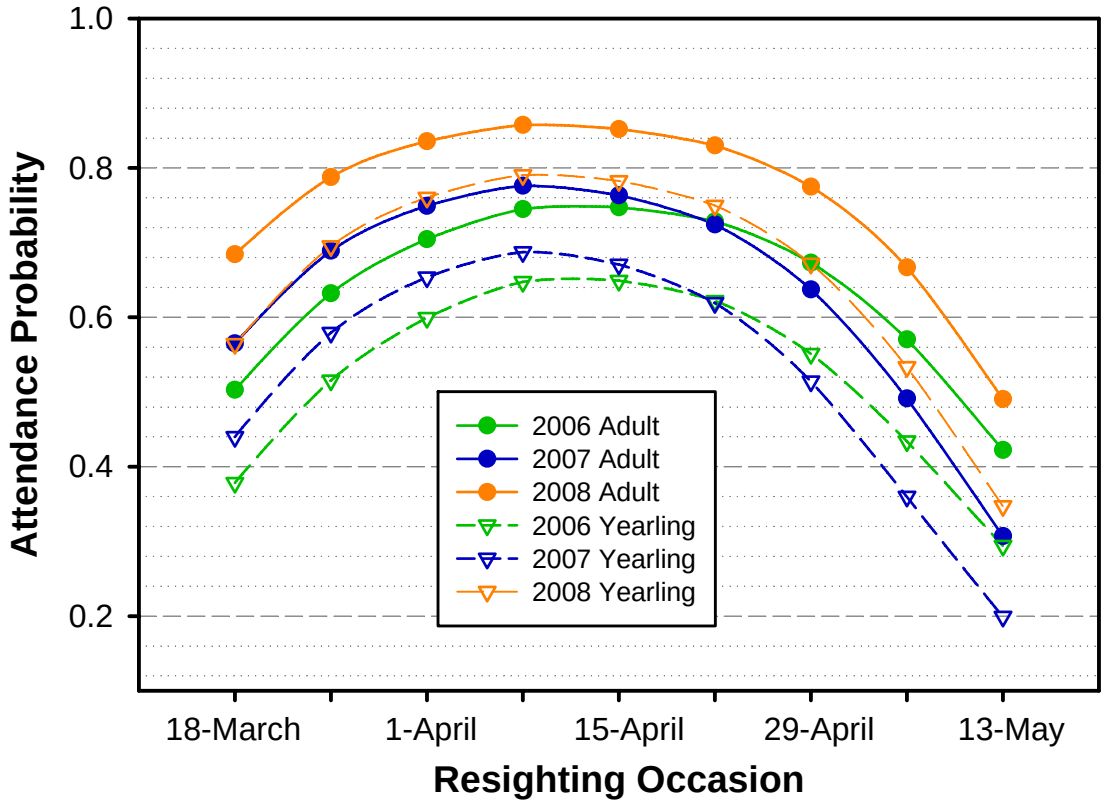

Figure 1. Model averaged lek attendance probability estimates for adult and yearling male sage-grouse.

Model averaged estimates of the probability of both adult and juvenile males attending leks showed a linear relationship with the lowest probabilities at the beginning and end of the study, and the highest probabilities during the 4th resighting occasion in 2006 and the 5th resighting occasion in 2007 and 2008 (Figure 1). In all 3 years, attendance was greater for adults than for yearlings throughout the study. The maximum attendance probabilities appeared to increase approximately 0.03 from 2006 to 2007 and 0.08 from 2007 to 2008 (Table 2).

Table 2. Estimates of maximum probability of lek attendance generated from model averaging. SE are unconditional standard errors.

	Adult		Yearling	
Year	**Estimate**	**SE**	**Estimate**	**SE**
2006	0.747	0.056	0.649	0.097
2007	0.776	0.050	0.687	0.089
2008	0.857	0.031	0.790	0.067

Results from our blind counts in 2007 (n=17) and 2008 (n=31) indicate that on average, lek route counts include about 91% and 88% respectively, of the total birds present on the leks.

Discussion

The 3 variables of time, age, and year were all important in explaining some variation in the probability of male sage-grouse attending leks for the 2006-2008 data. After an additional year of data collection in 2009, we plan to repeat the analysis with additional variables to investigate how weather, time of day, moon phase, and features of individual leks may influence attendance patterns. We will also explore the potential for density dependence and the possible effects that population trajectory and capture date and location may have on lek attendance.

Sightability work will also continue in the field season of 2009. We will determine the sightability bias of sage-grouse that attend leks and use multivariate regression to evaluate effects of biologically relevant variables (e.g. relative lek size, height and density of cover, etc.) on the sightability of male and female sage-grouse from a lek route census. Further analysis of these data should reveal which factors affect the bias with which an observer counts sage-grouse during a lek route, as well as his or her ability to determine the sex of birds on a lek.

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A translocation study using capercaillie *Tetrao urogallus* from Central Russia

Christoph Unger & Siegfried Klaus

Summary
As compensation for damaging capercaillie *Tetro urogallus* habitat in Thuringia, eastern Germany, by two newly built reservoirs, an electric power company was required for both habitat improvement in the area surrounding the dam and for a translocation experiment to supplement a small remnant population of capercaillie. Capercaillie were caught in autumn near Yaroslavl and Kostroma, 400 - 600 km NE of Moscow, central Russia. Birds were released after 2 weeks of quarantine in pens located within adequate habitats. Between 1999 and 2003 145 birds had been released. The sex ratio (males:females) was 2:1. The distribution of age classes of males resembled natural conditions. The mean survival time of 16 radio marked birds was 283 days, ten times higher than pen-reared birds released in Thuringia. Reproduction of released birds was observed in 8 independent cases. Despite the different habitat types (wet pine forests in the lowlands of Russia versus more dry mountain pine-spruce forests in Thuringia), the birds adapted well to a different topography and a different ground vegetation as a nutrient source. Dispersal distances of released adults averaged 5.2 km. The mean home range size was 689 ha.
Key words: translocation, capercaillie *Tetrao urogallus,* survival, Thuringia.

Introduction

Few translocation experiments with wild capercaillie *Tetrao urogallus* have been reported after the successful reintroduction of this species to Scotland (Lever 1877).Most of the reintroduction experiments with tetraonids raised in captivity in Germany have failed or not yet proved to be successful (Klaus & Bergmann 1994, Klaus 1998, Schwimmer & Klaus 2000, Siano et al. 2006). Although most reintroductions have been poorly documented, the release of birds caught in the wild seems to be the most effective method. Romanov (1988) described one successful example from Kazakhstan where about 60 wild capercaillie were released into an isolated forest area (forest steppe zone outside the natural area of the species). Twenty years later, the population was estimated to be approximately 700 birds and controlled hunting was allowed. For a more detailed discussion of the problem including quality parameters of released birds, see Starling (1991), Klaus (1998), IUCN (1998) and Bergmann et al. (2000). An attempt to augment a small population of capercaillie caught in the wild was started in Thuringia, Germany, in December 1999 (Klaus & Graf 2000). As compensation for damaging parts of the Thuringian capercaillie habitat (both direct loss and degradation) by two newly built reservoirs, an electric power company had to pay for both habitat improvement in the area surrounding the dam and for an augmentation experiment to supplement a small remnant population of capercaillie.

Methods

Trapping and transportation
Capercaillie was caught in the wild near Jaroslavl and Kostroma, about 400 - 600 km NE of Moscow. For Trapping of capercaillie Romanov's fall-down traps were used (Romanov 1988) with grit as bait exposed at localities traditionally visited by grit-collecting birds in autumn. From 1999 to 2003 145 capercaillie were transported by airplane from Moscow to Berlin and by car to the release site in the Thuringian capercaillie area.

Measuring, marking, releasing site and habitat
Just after their arrival, all birds were measured (beak depth, length of primaries and tail, weight) to estimate each individual's age (Moss 1987). All 145 birds were ringed. Necklace radio transmitters (weight 20 g, Holohil, Canada) were placed on 13 males and 12 females from 1999 to 2002. Excrements were investigated for parasites. The morning after arrival, the birds were transferred to enclosures in suitable habitats dominated by old Scots pine and Norway spruce with a well-developed ground vegetation dominated by bilberry *Vaccinium myrtillus* in the mountain forests (700 - 850 m a. s. l.).

Statistical Analysis
For statistical analysis SPSS 12.0 was used. Home range sizes were determined with the program Ranges 6 and calculated according to the 95% convex polygon (95% MCP) method (Samuel & Garton 1985). All analyses are based on the 95% activity range.

Results and discussion
Survival and reproduction
Survival was calculated for 25 birds equipped with transmitters and 8 found rings. 15 males (75%) and 9 females (60%) were killed by red fox *Vulpes vulpes* and/or pine marten *Martes martes* and 3 males (15%) and 5 females (33%) were killed by goshawk *Accipiter gentilis*. The mean survival time for 33 birds were 286 days (median: 100 days), >10 times longer than released capercaillie raised in captivity (mean survival: 25 days, median 17 days in the same habitats in Thuringia, Schwimmer & Klaus 2000). Seven birds (21%) survived more than one year (Figure 1). It was not significant differences between male and female survival, however it was a tendency of longer survival in males than females.

In the summer of 2000 a 3 -month old male was killed by a red fox within the release area. Genetic analysis (Segelbacher, unpublished) revealed a genetic relationship with a capercaillie released during the end of 1999, indicating first reproduction of a translocated bird. From 2000 to 2006 we found reproduction of released birds in 8 independent cases.

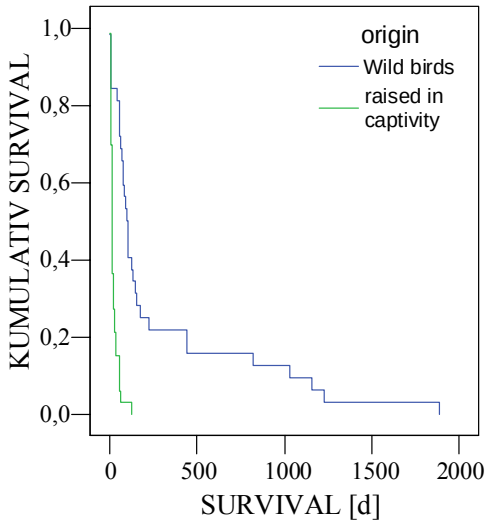

Figure 1. Comparison of survival functions (according to Kaplan & Meier) of wild capercaillie versus birds raised versus bird raised in captivity.

Dispersal and size of home ranges
The mean activity range size calculated for 16 birds surviving longer than 2 month was 689 ha (MCP 95%, Table 1). Intersexual differences were significant (Man-Whitney U-test, $p < 0.05$, Fig. 2). After translocation during adaptation to the new site, some of the birds used big areas. One male used several temporal and spatial independent home ranges during two years varying in size between 70 and 375 ha, all within an area of 8000 ha (MCP 100%). The mean maximum distances between release site and localisation points were 5200 m (Table 1). Home range sizes and dispersal of translocated birds were

similar to native capercaillie (Larsen et al. 1982, Rolstad et al. 1988, Storch 1995, Wegge & Larsen 1987).

Table 1. Activity ranges (95% MCP) and dispersal of capercaillie.

	Male					**Female**				
	Range	mean	median	SD	N	Range	mean	median	SD	N
Size [ha]	70-998	326	345	341	7	412-2127	952	761	538	9
Greatest distance to release site [km]	1,5–9,6	4,3	3,3	2,5	7	1,3 – 15,5	6,6	4,8	5,2	9

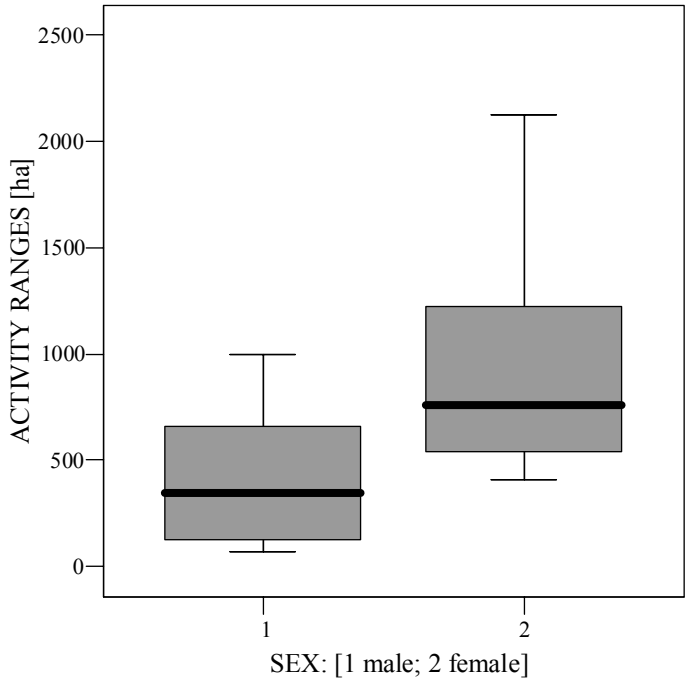

Figure 2. Comparison of activity ranges from males (n=7) and females (n=9).

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BOOK REVIEWS

Watson, A & Moss, R. 2008. Grouse. The natural history of British and Irish species. – HarperCollins Publishers, London.

Two of the famous grouse researcher from Scotland, Adam Watson and Robert Moss, have finished their book on grouse. It is a huge amount of experience behind this book. Adam Watson has studied red grouse and ptarmigan since 1943, and Robert Moss has long experience in studies on red grouse and capercaillie.

The book summarises much of their work and mainly deals with British and Irish species, but also other research on grouse from Canada and USA in west to Russia in east in included. Red grouse and willow ptarmigan, rock ptarmigan, black grouse and capercaillie are the species included in the book.

The first two chapters deal with grouse worldwide and their origin, and the origin of their names. Then the biology of red grouse/willow ptarmigan, rock ptarmigan, black grouse and capercaillie is dealt with in the next four chapters respectively. The book also have separate chapters on behaviour, snow-roosts, territories, plumage, habitat, nutrition and digestion, enemies, population fluctuations and a last chapter dealing with management and conservation. Each of the 15 chapters has a short summary.

The chapter on behaviour deals with social systems, display, reaction to enemies and parental care. Snow-roosting is described in chapter 8. Grouse may roost in snow-bowls or in snow-burrows. Conditions in a snow-burrow and when they are used by grouse in discussed.

Territory in willow ptarmigan/red grouse and rock ptarmigan is discussed where territory size and shift from spring to spring are among the topics. Also territorial behaviour at different seasons is discussed and territorial behaviour and spring numbers is discussed.

Chapter 10 to 13 discuss plumage, habitat, nutrition and enemies respectively. Plumage during the year and differences in moulting between the species is discussed. In the habitat chapter the effect of warming after the last ice age that led to growth of vegetation and change in habitat is discussed. Later a wet climate caused deforestation and peat expansion in many areas. These changes had an impact on grouse habitats.

Grouse are adapted to a low protein and fibrous plant food during the winter. The change in diet during the year and chick food is discussed. Predators and their effect on grouse is discussed in the next chapter together with the impact on grouse of parasites and diseases.

The two last chapters discuss population fluctuations and management and conservation respectively. The reasons for the fluctuations in numbers of British grouse are discussed. Factors like weather, predators, food, and parasites and diseases are among factors discussed that directly may influence numbers. In the last chapter different aspects of management and conservation are discussed. The impact of hunting on grouse is an important part of grouse management. Overgrazing by sheep and deer has damaged habitats. The effect of pollution, climate change, predators and parasites is dealt with.

This book should be recommended to everyone doing research on grouse. However, it would also be of interest to others interested in grouse. This is an important contribution to the knowledge of some of the grouse species. This book is a must for all that are interested in grouse.

The book is published by HarperCollins Publishers, London, ISBN 978-0-00-715098-4

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Sun, Y.-H., Fang, Y., Klaus, S., Martens, J., Scherzinger, W., Swenson, J.E. & cooperators. Nature of the Lianhuashan Natural Reserve. - Liaoning Science and Technology Publishing House, Liaoning, PR China.

A group of Chinese and European ecologists have conducted cooperative ornithological research in the Lianhuashan Natural Reserve for the last fifteen years. A "by product" of this Sino-European cooperation is a beautifully illustrated popular book dealing with the nature of this hitherto little-known national mountain forest reserve in the Lianhua Mountains in southern Gansu Province in Northwest China. The conifer-dominated mountain forests, mixed with a high variety of deciduous trees and shrubs, cover impressive limestone mountains and ridges. A 3600-m high peak, surrounded by deep valleys and canyons, dominates the area. Landscapes, forests, local people, alpine flowers and animals of the reserve are shown in 172 colour pictures. Many of the pictures are devoted to rare and difficult-to-observe birds and a number of them have never been shown in such crisp colour photos before.The international studies in this area started with an enigmatic galliform as the main target species, the Chinese grouse, a then nearly unknown first-grade protected and highly endangered bird that is endemic to China. Little by little, the extraordinary high diversity of the bird fauna generated more research plans and the studies were extended to a number of other rare birds, such as the blood pheasant, chestnut-throated partridge, Sichuan wood owl, Tengmalm's owl and various songbirds. The area also harbours a newly indentified leaf warbler species. The bird list for the reserve numbers 170 species, but this is surely an incomplete number. The enormous diversity of flowering plants is documented by many impressive photo images, too. A list of 550 plant species belonging to 81 families is presented in the appendix, including species-rich genera, such as willows (*Salix*) with 22 species and *Lonicera* with 14 species. The various chapters are devoted to the different types of forests, plants and the most impressive representatives of birds and to an introduction to the most important results of this Sino-European team of scholars from China, Austria, Germany and Norway.

Most people certainly will be surprised to learn of the beauty and relatively intact biological diversity in this reserve, considering the population density in many parts of China and the environmental harmful effects of the Great Leap Forward. Although the book deals with the Lianhuashan Natural Reserve, many of the birds dealt with in the list are wide-spread in the western mountain regions of China. This makes the book also useful to travellers visiting other parts of this impressive country.

Liaoning Science and Technology Publishing House, Liaoning, PR China, 100 pages, many colour photos, 2 tables. ISBN 978-7-5381-5257-9, € 19,90. In English and Chinese. Available at: Christ Media Natur, PO Box 110205, 32405 Minden; info@christ-media.de or St. Ernst, Markneukirchner Str. 3, D-08248 Klingenthal, info@buchhandlung-klingenthal.de.

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CONFERENCES

Meeting Report

World Grouse in Peril
Summary of the 11th International Grouse Symposium

Lance McNew & Beatriz Blanco-Fontao

Introduction

The 11th International Grouse Symposium was held during 11-15 September 2008, in Whitehorse, Yukon, Canada. What better venue for a grouse meeting than the Yukon territory, home to eight different species of prairie, forest, and alpine/arctic grouse? The symposium, which is held every three years, has been bringing world grouse biologists together for more than 30 years. In that time, the symposia have sought to minimize the gap between science and conservation. This year's conference was jointly hosted by the Centre for Applied Conservation Research at the University of British Columbia, Environment Canada (Pacific and Yukon Region), and Yukon College. Much credit should go to the conference and program committees for organizing and implementing an enlightening and diverse symposium.

Symposium at a Glance

The effects of climate change on boreal and tundra ecology set the stage for the meeting, with Canada as a literal hotspot for rapid climate change. Charlie Krebs postulated large effects of climate change on northern ecosystems and challenged the group to develop and test better predictive models. Susan Hannon and Kathy Martin reminded the group of the significant contributions of Canadian grouse research not only to the conservation of grouse but to evolutionary biology and ecology in general. Invited seminars by Michael Schroeder and Ilse Storch offered results and interpretation of long term studies of old world forest grouse and new world prairie grouse.

Current issues were explored in 60 oral presentations and 27 posters, dealing with demography, population dynamics, genetics, systematics, ecology and management of grouse occurring in 18 countries. Due to the generally negative status of grouse populations worldwide, conservation was the overriding theme of the meeting. World grouse populations have sustained heavy losses over the last century, with 14 of 18 species on national red lists (Storch 2007). In addition, the International Union for Conservation of Nature (IUCN) recognizes one endangered species, two vulnerable and three near-threatened species. Additionally, the outlooks for many populations of non-listed species were negative, with research reporting or predicting future declines; especially for low-latitude populations.

Population Monitoring and Management

Significant local, regional, or range-wide declines of grouse populations have and continue to be ubiquitous. Thirty-seven (37) presenters described population trends in their respective study systems, and > 80% observed or predicted population declines. Increases in study populations were noted in only 5% of studies (Figure 1). Declines extend across the majority of grouse ecosystems with the steepest declines occurring for prairie grouse populations in North America and forest grouse populations in central and southern Europe.

The causes for these declines were explored in several studies. Most declines were attributed to the anthropogenic effects with direct human impacts observed in several studies. Possibly more concerning, however, is the continued large-scale demographic effects of habitat degradation and fragmentation. Due to generally requiring large tracts of suitable habitat, grouse are highly susceptible to human disturbance. Silvicultural practices were observed to impact the population dynamics of Blue Grouse in British Columbia, Capercaillie in Slovenia, and Black Grouse in Russia. Energy developments (i.e., natural gas, wind) are resulting in declining populations of greater sage grouse and predicted declines in Lesser and Greater Prairie-Chickens; due to direct effects on demography and/or the indirect effects of habitat loss (see below).

Declining population trends are of special concern given that grouse are considered to be indicator species for their respective ecosystems (Storch 2007). For example, empirical data support the consideration of capercaillie as an umbrella species for old growth forest species conservation (Suter et al. 2002, Pakkala et al. 2003) and sage grouse for sagebrush obligate species (Rowland et al. 2006). In addition, presented research affirmed multiple cases of grouse as keystone species driving community dynamics. Therefore, population declines are relevant not only to grouse and those who enjoy grouse, but to the integrity of alpine, boreal, grassland, and forest ecosystems.

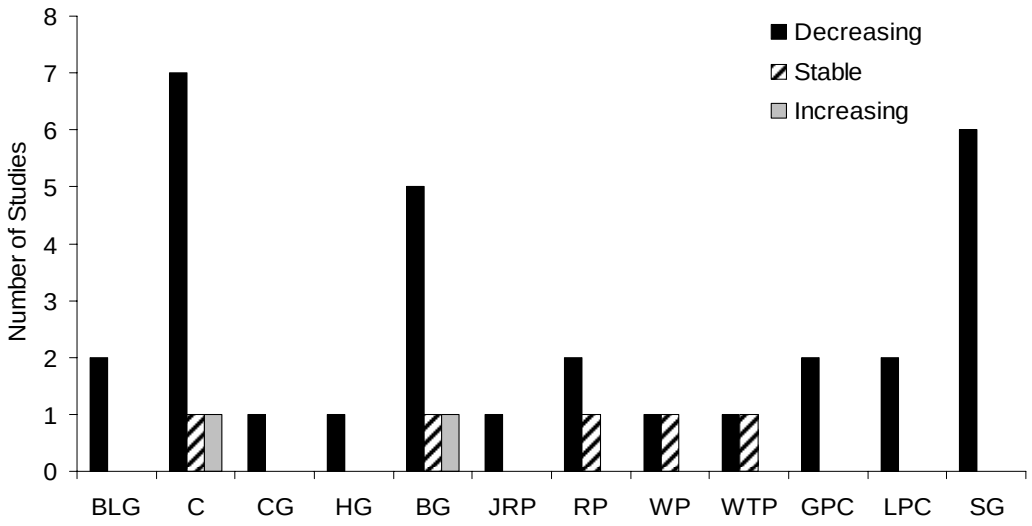

Figure 1. Studies presented at the 11th IGS reporting decreasing, stable, or increasing study populations. (BLG = blue grouse, C = capercaillie, CG = Chinese grouse, HG = hazel grouse, BG = black grouse, JRP = Japanese rock ptarmigan, RP = rock ptarmigan, WP = willow ptarmigan, WTP = white-tailed ptarmigan, GPC = greater prairie-chicken, LPC = lesser prairie-chicken, SG = sage grouse

Habitat Use and Conservation

The availability and suitability of habitat is central to the viability of animal populations because it influences all aspects of behavior, reproduction, and survival. The importance of habitat was reflected in the many presentations at the symposium dealing with resource selection and critical habitat requirements. Resource selection was assessed for many species of grouse, and the extent of studies varied from local to landscape scales. Moreover, multiple studies documented habitat selection at multiple spatial scales; highlighting the importance of multi-scale analyses to understanding the relationship between grouse and their environment. However, the importance of local approaches for animals with large distributions was also emphasized. Researchers noted that selection may change across the distribution area of some species and successful conservation may only be possible through locally adapted approaches. Additionally, long-term and large-scale studies are contributing to grouse ecology by providing valuable insights into habitat selection by grouse.

One overriding question loomed large over the symposium; 'How can we conserve grouse in the face of the large-scale anthropogenic-mediated changes that world habitats are suffering?' Many research groups are taking the initial step in addressing this question by evaluating resource selection and space use in human-altered or disturbed landscapes. Forestry and agricultural practices, energy development, and human recreational activities were added to the long list of human-facilitated landscape changes resulting in the loss or fragmentation of vital grouse habitats. For example, massive increases in oil and natural gas development in the last half century have resulted in significant losses of critical habitat for Greater Sage-Grouse. Even the effects of non-consumptive human recreational activities (e.g., ski resorts) can result in behavioral avoidance and effective habitat loss. In addition to these proximal causes of habitat loss and population declines, there is evidence that the effects of global warming may be manifesting themselves in grouse habitats, especially in northern systems.

New Tools for Old Questions

The symposium also offered researchers a glimpse at new techniques or novel applications of old ones. Stable isotope analysis of feathers was presented as a new and valuable approach for assessing intraspecific niche partitioning; suggesting sexual habitat segregation in Cantabrian Capercaillie. A new technique was described that not only allows semen to be collected from male Capercaillie and Black Grouse in captivity, but also from wild birds in their natural habitats. This new method of semen collection is non-invasive and does not appear to interfere with natural reproduction. Therefore it may be greatly beneficial to endangered species conservation. Other researchers were successful in supplementing wild Sage-Grouse broods with pen-hatched chicks as a means of increasing reproductive output; although the efficacy of this technique as a management strategy remains unknown.

New techniques were also presented in the areas of population demography and monitoring. Preliminary research demonstrated the potential use of mark-resighting methods in developing unbiased estimates of prairie grouse abundance using lek survey data. Others developed a new population model that incorporates both the effect of declining per capita growth rates at low population sizes (Allee effect) with the effect of declining growth rates as populations approach carrying capacity (Ricker effect); a case study of Greater Sage-Grouse demonstrated the model's utility. Complimenting the population demography sessions, a special methods workshop was presented by Brett Sandercock. The two-evening workshop introduced participants to the theory and application of recently developed demographic models available in Program Mark, as well as building and analyzing population models in Program MatLab.

The rapid evolution of genetic and molecular tools has allowed grouse biologists to answer many outstanding questions and has significantly improved our knowledge of Tetraoninae. First, recent developments of selective markers are providing valuable insights on the evolutionary biology of grouse. In addition, a variety of genetic applications were presented at the symposium. One study addressed the phylogeography of grouse, identifying previously unknown separate lineages from different glacial refugia. New research also illustrated the utility of combining genetics with spatial and environmental data to identify functional landscape connectivity for grouse populations. Furthermore, conservation aspects like the influence of fragmentation or the role of matrix configuration on dispersal, gene flow or genetic structure of grouse were successfully assessed with these techniques. Researchers in Europe and North America are applying these methods to identify potential population isolations and resolve priorities for habitat/corridor restoration. New genomic tools have been established for a number of grouse species and will further help us to identify how grouse adapt to different environments. Finally, others demonstrated the utility of combining genetic and demographic data to evaluate population viability of reintroduced populations.

The Future of Grouse and Grouse Research

Bridging the gap between science and management is a primary charge of the International Grouse Symposium. As a result, there was a series of useful management implications and recommendations offered in presentations at the meeting. However, implementation and evaluation of scientific management recommendations either rarely occurs or is seldom reported. Feedback from action evaluation is necessary for adaptive management to progress. However, the political and/or logistical roadblocks to this adaptive approach usually hinder its application. A few exceptions are notable from this year's symposium. The effectiveness of science-based forest management practices for Black Grouse conservation is currently being assessed in Scotland. In addition, the results of recent science have been used to assess priorities for species action plans for Capercaillie in both Germany and Switzerland. Future evaluations of the effectiveness of these action plans will go far in closing the loop of adaptive management.

Another research area of recent and future consideration deals with the effects of global climate change. Due to their holarctic distribution and dependence on specialized habitats, the grouse family will be a useful model group in assessing and predicting species responses to climate change. Impacts of climate change may be greatest for grouse species occupying climate-sensitive habitats (e.g., boreal forest) or populations occurring at the southern edges of global distributions (e.g., alpine sites in Spain, Germany). Responses could take any number of forms; from direct effects of warmer climates on vital population processes (e.g., egg viability and chick survival) to the indirect effects community restructuring via non-native range expansion (e.g., increases in generalist grouse predators or competitors).

Answers to some of these questions will likely be provided at the 12th International Grouse Symposium, which will be held in Japan in 2011; organized by Hiroshi Nakamura from Shinshu University in Nagano. The IGS continues to play an important role in the dissemination of pertinent information and the interaction and collaboration of grousers from all over the northern hemisphere.

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Call for papers – Studies in Avian Biology
Ecology, conservation and management of grouse

Series Editor: C.D. Marti

Associate Editors: B.K. Sandercock, K. Martin and G. Segelbacher

We invite manuscripts for an edited volume on the Ecology, Conservation & Management of Grouse that will contain 15 to 30 high-quality peer-reviewed articles that synthesize current knowledge and issues in grouse biology. Most manuscripts will be research publications resulting from oral and poster presentations from the 11th International Grouse Symposium that was held September 11-15, 2008 in Whitehorse, Yukon. However, we are willing to consider manuscripts from authors who were unable to attend the symposium. **This notice is a call for papers from any authors who are interested in submitting manuscripts on grouse biology for inclusion in the special volume.**

History of Publications

The Grouse Specialist Group is comprised of research scientists and wildlife biologists with interests in the biology and conservation of grouse (Galliformes: Tetraoninae). The International Grouse Symposium has been held every three years since 1978, and peer-reviewed articles or proceedings have been published from ten previous meetings. The format of past publications has included collections of peer-reviewed articles produced as special issues of Wildlife Biology or Ornis Scandinavica, and monographs of proceedings produced by the World Pheasant Association. Manuscripts will be published as a special volume of Studies in Avian Biology (SAB), published by the Cooper Ornithological Society. SAB is an well-established monograph series in ornithology and has published 37 volumes in a 30-year period (1978 to 2008). Volumes of SAB are relatively inexpensive (<US$30) and will be available on the Searchable Ornithological Research Archive once they are out of print. Authors will receive a PDF file of their article for use in making reprints or posting on their personal and institutional websites. Contributed research manuscripts can be on any topic in grouse biology, including population biology (e.g., genetics, demography), behavioral ecology (e.g., mating systems, movements), conservation biology and management (e.g., harvest, habitat requirements, translocations). Evaluation of manuscripts will follow journal standards for a peer-reviewed publication in Studies in Avian Biology and will be handled by a team of three Associate Editors.

Contact Information for Associate Editors for Special Volume in Grouse Biology

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Editorial Team

The special volume of Studies in Avian Biology will be edited by a team of three Associate Editors with research experience in grouse biology: Brett K. Sandercock (Kansas State University, Kansas), Kathy Martin (University of British Columbia, Canada), and Gernot Segelbacher (University of Freiburg, Germany). Sandercock has expertise in demography, wildlife ecology and prairie grouse, Martin has expertise in population biology, behavioral ecology, forest management and life histories of tundra grouse, and Segelbacher has expertise in conservation genetics and forest grouse. The Associate Editors will manage the peer-review process and then work with Series Editor Carl D. Marti to ensure that final manuscripts are properly formatted for Studies in Avian Biology before publication. Submission and evaluation of contributed manuscripts will proceed in three steps.

Step 1. Letters of Interest: Authors who are interested in contributing manuscripts to the special volume are requested to send a letter of interest by e-mail to Associate Editor Brett K. Sandercock. Submissions received after this date will not be considered if the timing of manuscript submission would delay production of the volume. Letters of interest can be brief but should include three items: a working title for the manuscript, a list of coauthors and their affiliations, and a short abstract describing the manuscript topic and datasets. The purpose of the letters of interest is to minimize overlap among manuscripts and to confirm that an adequate number of contributions will be submitted for this special volume. The Associate Editors would be delighted to discuss manuscript ideas with prospective authors before submission of a letter of interest.

Step 2. Manuscript Preparation and Submission: Authors will need to carefully follow specific instructions for preparation of manuscripts that are properly formatted for the journal style of Studies in Avian Biology. A 10-page set of Instructions for Authors with checklists is available to assist authors. Page limits for manuscripts will be 30 pages of text (7500 words) including the title page, abstract through the literature cited and figure legends. Longer manuscripts will be considered by special arrangement but may require additional charges for extra pages. The Associate Editors can provide assistance with manuscript preparation to any authors working in English as a second language. At submission, authors will be required to provide names and contact information for up to 5 possible reviewers for their manuscript. All manuscripts should be submitted by e-mail as Word or PDF files to Associate Editor Brett K. Sandercock.

Step 3. Procedures for Peer-Review: Upon submission, each manuscript will be assigned to 1 of 3 Associate Editors who will handle manuscripts based on their knowledge of the content and their different areas of expertise. Associate Editors will critically evaluate manuscripts upon submission and unsuitable manuscripts may be returned or rejected without review. Manuscripts circulated for peer-review will be independently evaluated by two reviewers, including at least one external reviewer and one reviewer selected from the pool of contributors or delegates who attended the symposium. In cases where the two reviews are split, the Associate Editors may review the manuscript themselves or send the manuscript to a third reviewer for an independent set of comments. Once the Associate Editors are satisfied with the revisions, manuscripts judged acceptable will be sent to the Series Editor Carl D. Marti who will edit them for SAB style and make the final determination on their acceptability.

Schedule for Publication:

Target Date	Task
December 1, 2008 to January 31, 2009	Approval of letters of interest
March 1, 2009	Deadline for first submission of manuscripts
June 1, 2009	Deadline for return of first decisions to authors
September 1, 2009	Deadline for submission of revised manuscripts
December 2009	Projected publication date for Studies in Avian Biology

Pending approval of a letter of interest, authors will be invited to submit manuscripts for a target deadline of March 1. Reviewers will be given a 3-month period to complete their reviews and they will receive periodic reminders if their evaluations are delayed. Reviews will remain confidential unless anonymity is waived. We will aim to have first decisions back to authors by June 1, and authors will be given another three months to revise manuscripts. To keep authors and reviewers on track, we will create a website dedicated to production of this volume where we will post the full list of submissions and periodic updates on the status of each manuscript as the reviews and revisions are received. Final manuscripts will be sent to editorial staff at Studies in Avian Biology for copy-editing once the revised

version has been accepted. The projected publication date for this special volume of Studies in Avian Biology is December 2009.

Page Charges
Page charges for publication of this special volume of Studies in Avian Biology will be met by billing of individual authors contributing manuscripts, and by financial support from a small budget left over from the International Grouse Symposium in Whitehorse, Yukon. We have successfully negotiated a reduced rate for page charges at $75 per page, which is less expensive than most journals in wildlife ecology. We encourage participation by all potential authors to ensure publication of a volume with the best possible science. Authors without access to funds for page charges can apply for waivers of page charges. Waivers of page charges will be granted on a need-based schedule, and priority will be given to authors who are graduate students or authors from institutions with limited budgets. The special volume of Studies in Avian Biology will be an important contribution to wildlife ecology as an edited, peer-reviewed volume that will provide a broad overview and synthesis of current knowledge and issues in grouse biology!

5th European Conference: Black Grouse Endangered Species

The first International Black Grouse Conference was organized in Belgium, in 2000. Since then the conferences have been organized in different countries to gather black grouse specialists from across Europe. The 5th meeting will be held in Poland.

In the 90's the black grouse population in Poland reached dramatic rate of decline like in many other European countries. In the end of 90's, as a result of the situation a few national parks, non governmental organizations and other institutions have started local black grouse conservation initiatives.

The Polish Society for Birds Protection (PTOP) is pleased to invite you to the 5th European Conference Black Grouse Endangered Species. The conference will be held in Białowieza, Poland, between 5th and 9th October 2009.

We hope that the conference will be a great opportunity to discuss the present situation of the black grouse in Europe and further initiatives concerning the protection of this species and its habitats.

Please return the registration form to the contact person before the end of January 2009. The second announcement will be sent out in February 2009 to those who return the registration form.

Contact:
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First announcement

5th European Conference Black Grouse Endangered Species

Białowieża
5-9 October 2009

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REGISTRATION FORM

Title _____ Name _____ First Name _____

Country _____ E-mail _____

I register as

☐ Regular (120 Euro)
☐ Student (60 Euro)

I will present

☐ Oral presentation
☐ Poster
☐ No presentation

Title: _____

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SNIPPETS

PhD thesis from University of Oulu, Finland, on raptors and possible impact on grouse

In June 2008 Vitali Reif defended his PhD thesis at Faculty of Science, Department of Biology, University of Oulu, Finland. In the thesis the impact of raptors on grouse and mammals and the relationship between predators and prey is discussed. The buzzards had a fairly small impact on juvenile grouse, which did not correlate with vole density. However, the productivity of goshawks followed the fluctuations of grouse density closely whereas the occupancy rate of goshawk territories did so with a two-year lag. The annual numerical ratio of goshawk to grouse was inversely related to grouse density, suggesting that this predator may be a destabilising factor for grouse population dynamics. However, the goshawks' kill rate of grouse showed no clear relations to grouse density. No strong effect of avian predators on juvenile grouse mortality was found. In boreal forests, predators and other factors of grouse mortality do not operate as one, and there is probably no single factor responsible for the reproductive success of grouse.

Reif, V. 2008. Birds of prey and grouse in Finland. Do avian predators limit or regulate their prey numbers? – PhD thesis, University of Oulu, Finland.

Vitali Reif, Faculty of Science, Department of Biology, University of Oulu, P.O.Box 3000, FI-90014 University of Oulu, Finland. The thesis may be found at the following address: http://herkules.oulu.fi/isbn9789514288050/isbn9789514288050.pdf

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IN MEMORIAM

Esa Ranta in memoriam

Professor Esa Ranta died unexpectedly 29th August 2008 at the age of 55. He had just participated at the Moose Conference in Siberia, and he was prepared to fly to our Grouse Symposium in Whitehorse, Yukon. During the last fifteen years Esa's research focuses were mainly edible and delicious: grouse, moose, fishes, hares etc. Esa was a keen gourmet enjoying only the best food and drinks, if possible straight from nature.

Esa was the founding farther and the beacon of hope for the research group "Integrative Ecology Unit" in the University of Helsinki. He left an inestimable gap behind him, he was the inexhaustible source of ideas ready to deal his expertise with anybody.

As a scientist he was exceptionally productive and a real "jack-of-all-trades". His fields of interest covered all the aspects of ecology, also in genetics and phylogenesis. Lately he was mostly interested in game species, especially in grouse. The best achievements in our cooperation with Esa consisted of several articles about population dynamics, especially temporal and spatial synchrony in the fluctuations and cyclicity of grouse populations. Esa published more than 200 scientific articles, ten of them in Nature or Science. He was Doctor Honoris Causa at the Uppsala University (2001), and the Board Member of the British Ecological Society (2001-2004). He acted as the Editor-in-Chief both in Annales Zoologici Fennici and Ecography. Together with professors Per Lundberg and Veijo Kaitala Esa Ranta summarized their ideas in a book published in 2006 by the Cambridge University Press, *Ecology of Populations.* To quote their Introduction "… there is nothing so practical as good theory. [Richard Feynman]. Esa was a real theoretician, but he loved all the applied activities.

As a professor and teacher Esa was a beloved person. He supervised more than twenty doctoral thesis, but he liked to guide also younger students with their graduate works: He was a central author in two large text books, one in biometrics and one in ecology, both in Finnish with Finnish examples.

Nina, Esa's wife and colleague, lost a caring and loving husband and life-companion. Finland lost one of its most prominent scientists, and the University of Helsinki an exhilarated teacher. Personally, I long for my dear friend and his intelligent company.

Harto Lindén, Research Professor, Finnish Game and Fisheries Research Institute, Harto.Linden@rktl.fi.