Supplement to Behavioral Ecology

ISBE International Society for Behavioral Ecology

Newsletter

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Editorial

There are also several new items that I would like to draw to the attention of the society. The fiirst deals with the proposal for decoupling membership with journal subscription (see Message from the President, page 3-4). As the newsletter is a supplement to the journal, it is currently being distributed with personal subscriptions. If you join the society without also subscribing to the journal, but would like to receive the Newsletter, please contact me.

Second, the Newsletters are currently archived to the website (see logo above) approximately one to two months following distribution of the paper version. All issues published in the last four years are available on this site. This provides an official archive, allowing people to cite articles with web-addresses, as well as to allow people to retrieve articles from back issues. To complete the archive, Wendy King (the ISBE's archivist) has kindly arranged for all issues of the Newsletter dating back to Issue 1, volume 1 to be converted to pdf format. By the time this newsletter arrives in your hands, every past issue of the Newsletter should be available on the website.

Finally, we are in the process of building a database for people interested in being considered for book reviews. If you would be willing to review books in particular fields, please email me with your contact details (address, phone, fax, email) and a list of five key words outlining your research interests.

Ken Otter
Newsletter Editor

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Message From the President

Another superb biennial ISBE congress has now come and gone. This was the 10th and "Jubilee" meeting of the Society, and Rauno Alatalo, Taru-Maija Heilala, Janne Kotiaho, Johanna Mappes, Hannu Ylönen, and their staff hosted one of the most organized, efficient, and stimulating meetings in our history. Our meetings are always enriched by a strong mixture of theory and experiment; it is here that new ideas are often heard first, and it is here that we first hear whether a new idea has survived or fallen in the ensuing two years of rigorous testing. The Jyväskylä meeting was no exception with major paradigm shifts being advanced in every venue from plenary and Hamilton lectures through to individual talks and posters. Each participant surely has their own epiphany. Mine was that I better broaden my focus on stable equilibria in evolutionary games to the larger set of possible outcomes including limit cycles, saddle-points, bifurcations, and chaos.

We took time at the Congress to reflect on the recent deaths of several key champions and pioneers. Late colleagues such as Frank Pitelka, André Brosset, Donald Griffin, and John Maynard Smith not only left indelible marks on the field, but also served as critical mentors to many of us. John, for example, loved our meetings and would turn to whoever was behind him in a meal line and get them to talk about their work and interests. It did not matter whether it was a senior colleague or a beginning student: John was truly interested, and his contributed insights invariably affected that person's subsequent work and career. We mourn these colleagues' loss, but we should also celebrate their lives and their contributions. All of them pursued high standards of mentorship. Mentoring is the life-blood of any field, and behavioral ecology has always had a strong and vigorous tradition of doing so. Those of us who benefited from JMS, Frank, André, Don, or others, both living and dead, have a duty to mentor the young people in our midst as we were mentored. Many of us noted the very large number of young new recruits into our field at the Jyväskylä meeting. The field seems able to attract the brightest and most talented members of the next generation, and this was clearly evident in their talks and posters. The Pitelka Award, which was won this year by Sarah Pryke of Sweden, is but one way we can encourage and reward high quality contributions by younger researchers. There are many other ways, as JMS among others showed us. We have always been an equal opportunity society, and the Executive is proud that our congresses are a venue in which talented and successful women are as numerous as equivalent men. Our balanced recruitment of top new young scientists is a very healthy sign. Let's help them succeed.

The biennial congress is always the occasion for changes in leadership. Malte Andersson stepped down as President of the Society with a marvelous record of achievements including the crucial negotiation of a new contract for our journal with Oxford University Press. He will continue to provide his advice and insights as Past President. Nick Davies, as prior Past-President, oversaw the Pitelka awards and continued to play an important role as advisor on many issues. Councilors Linda Whittingham and Marty Leonard completed their terms and were replaced by Naomi Langmore and Mats Olsson. They join continuing Councilors Hanna Kokko and Nina Wedell. Marlene Zuk joins the Executive as President-Elect, and Paul Ward and Walt Koenig continue as Secretary and Treasurer respectively. As I discovered as President-Elect, the Society Executive undertakes far more business during the two years between meetings than one might expect, and we all owe our outgoing and continuing officers our deepest appreciation for a superb job and unstinting dedication. A summary of decisions by the Executive since its last meeting can be found in the minutes of the Jyväskylä business meeting in this issue of the newsletter.

Our journal's team of editors also saw major changes. After an outstanding tenure as Editor-in-Chief, David Westneat passed the baton to Andrew Bourke. Outgoing member of the editorial team Gunilla Rosenqvist was replaced this year by Goran Arnqvist, and Naomi Pierce will be joining the team later this year. In addition, a 7th editor will be appointed to help handle the increasing numbers of submissions to our journal. Serving as editors and reviewers for the journal is always a daunting task. However, it is essential to the health and goals of the Society, and we owe all who participate our warmest thanks. Details on the status of the journal and approved changes in its operation can be found in the minutes of the Jyväskylä editorial meeting posted in the reports from the outgoing and incoming Editors-in-Chief (page. 7-8 of this Newsletter).

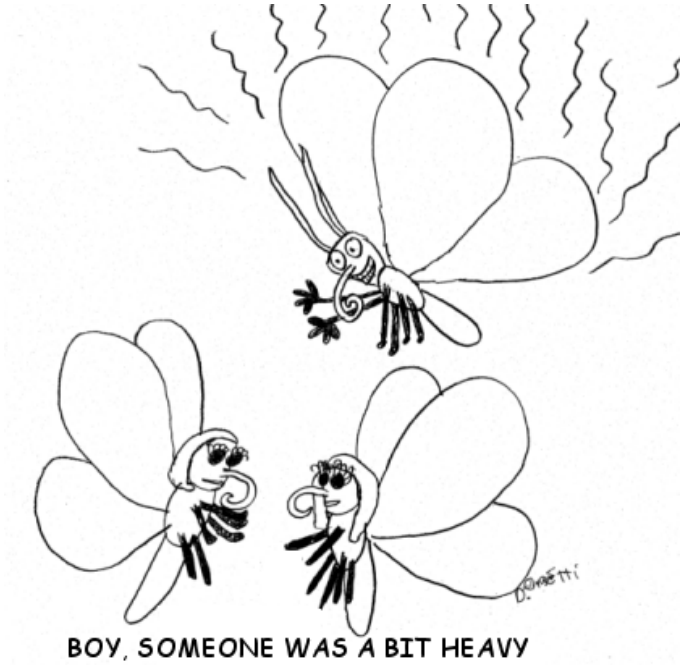
Several decisions at the Executive and Editorial

meetings may be of special interest to members. The next ISBE Congress will be held in Tours, France on 23-28 July 2006. Details will appear on http://www.isbe2006.com/. The Executive was very pleased with the advanced planning for this meeting. I had a chance to stop and see the venue at Tours after the Finland meeting and it is very impressive. The VINCI center is just across a small park from the Tours train station, and is surrounded by numerous small hotels, restaurants, and nearby student lodging. (Out of duty, we sampled one adjacent restaurant. Report: very good). The center itself is a very modern facility designed expressly for this type of conference and should have no problem housing all of our activities within it. Tours is surrounded by Loire Valley castles, and has its own very rich history. Given the many Society members who work on birds, the ISBE congress date was chosen so that one could attend both this meeting and the International Ornithological Congress which will be held in Hamburg the 13-19 August.

Following a report on the journal by OUP representative Cathy Kennedy, the Executive approved the expanding of the current "spousal" membership option, in which the "significant other" of a subscribing member can become a member for a small fee without having to pay for a second subscription to the journal. Most journal income now comes from institutional subscriptions, and the numbers of private member subscriptions has steadily dropped as members switch to online institutional access. To restore broader membership worldwide, we have thus approved a universal option to join the Society for about $10/year without having to subscribe to the journal. You no longer need to be a "significant other". This option will be posted online soon. A desk encouraging all meeting participants to become members will also be set up at all future congresses. All members of the Society will receive the Newsletter, and there may be reductions in participant fees for current members at future congresses.

Finally, we want to thank Ken Otter for his dedicated production of our semiannual newsletters, and Wendy King, who has served steadfastly as the ISBE archivist. Both Ken and Wendy perform enormous services for the Society with little fanfare and we all owe them our thanks.

Jack Bradbury
ISBE President



BOY, SOMEONE WAS A BIT HEAVY WITH THE 14-METHYL-HEPTACOSANE TODAY!

Cartoon by Damon Orsetti

Society News

Most Society News – workshops, conferences and job postings – is now publicized on our website (web.unbc.ca/isbe/newsletter). This allows ads and announcements to be posted shortly after receipt so that deadlines falling between newsletter distributions can be advertised. If you would like to advertise workshops, conferences or job postings of interest to the society, contact Ken Otter (otterk@unbc.ca) for posting.

CHANGES TO SPOUSAL MEMBERSHIP PROGRAM

Spousal memberships, whereby individuals could pay a nominal fee to join the society without subscribing to the journal if their spouse was also a society member, are being replaced. Anyone will soon have the option to join the society without taking a subscription to the journal (see Message from the President, page 4). Such memberships will receive the Newsletter and announcements for the biennial conference. Information on this process should soon be appearing on the society's (web.unbc.ca/isbe) and Oxford University Press' *Behavioral Ecology* (beheco.oupjournals.org) webpages. Current Spousal memberships will be honored until they are due for renewal, whereupon the new $10 fee will apply and the membership will become general.

DONATED SUBSCRIPTION PROGRAMME

Please help colleagues in need. Every donation will help increase scientific contacts across the world. In a time when nationalism is again raising its ugly head, this is more important than ever. For details, see the advertisement on the inside back cover of *Behavioral Ecology* volume 12(4).

GRANTS AND JOBS

Grants and Job postings are listed on the newsletter's webpage: web.unbc.ca/isbe/newsletter/index.htm

ISBE 2006 CONFERENCE

The 11th Congress of the ISBE will be held in Tours, France, 23-28 July 2004. Details can be found at www.isbe2006.com.

WORKSHOPS AND OTHER MEETINGS

The 24th International Ornithological Congress will be held in Hamburg, Germany, 13-19 August 2006. The scientific program committee has been formed and a web page is in place:
http://www.i-o-c.org/

Measuring Behavior 2005

Measuring Behavior 2005, the 5th International Conference on Methods and Techniques in Behavioral research, will be held in Wageningen, The Netherlands, 30 August - 2 September 2005.
http://www.noldus.com/mb2005/invitation.html

METADATA STANDARD FOR ANIMAL BEHAVIOR

There is increasing demand for pooling of the many archives and databases on animal behavior through Internet connectivity. The challenge facing any such "federation" is the diversity of database structures among the different potential contributors. The recommended solution is for a field of endeavor to define a metadata standard for their field that can, at minimum, serve as a "lingua franca" when linking different databases, and ideally, as a template for future studies that classify and describe behavior (e.g. ethograms). A first of two successive international workshops to define a "metadata standard" for animal behavior and related fields was held in Ithaca, NY in April of this year. The forty participants wrestled with both higher level organizational issues and the listing of useful classes of behavior. The result was a draft "ontology" that has been posted on the Internet at: http://ethodata.comm.nsdl.org, and advertised via

posters and talks at most of the relevant society meetings this summer and fall. Members of ISBE are urged to go to the site, read over the lists of proposed terms, think about the logical ordering of the terms, and submit suggestions for changes and improvements using the Forum pages on the website. Note that before any standard can be posted, reasonable definitions of each term must also be provided. The workshop participants could only begin to tackle this larger task, and ISBE members can be of great aid by finding terms with which they are familiar, and proposing relevant definitions on the Forum pages. We need your input. Without it, no "standard" will be useful or survive later scrutiny. Please help. There will be a second meeting in Spring 2005 to collate and integrate the cumulative input.

Minutes of the 2004 ISBE Business Meeting

International Society for Behavioral Ecology Business Meeting Jyväskylä, 14th July 2004.

Agenda

1. Local organizing committee
2. Journal report
3. Newsletter editor's report
4. Treasurer's report
5. Report on Ethodata
6. ISBE 2006, 2008
7. Other business.

The President, Jack Bradbury (JB), conducted the meeting. Approximately 40 members were present.

JB thanked Malte Andersson, now the Past President, for his work on behalf of the Society. JB announced that David Westneat was retiring as Editor-in-Chief and being replaced by Andrew Bourke. JB thanked both for their extraordinary work for the Society. JB also announced that the executive had voted to add another editor to the journal team.

1. **Hannu Ylönen reported for the local committee**. There were 910 participants at the meeting, with 330 contributed talks, 9 plenary lectures and 410 poster presentations. 40 participants, mainly from eastern Europe, had been financially helped to attend the meeting, for a total cost of approximately 5000 Euros.

2. **The journal report was given by David Westneat (DW) and Cathy Kennedy (CK) (Oxford University Press).**

   CK reported that Behavioral Ecology is going against the current trend for most journals of a strong decline in institutional subscriptions: 2002, 379 subscriptions; 2003, 385; 2004, 376. Many institutions now access journals through consortium arrangements, which usually means few new institutional subscriptions. Membership numbers are declining, in common with other societies. Behavioral Ecology was made available by the Press free to 256 institutions in developing countries in 2003 and to 363 in 2004.

   The impact factor of the journal is increasing steadily, and last year was slightly above Animal Behaviour.

   DW reported that there had been 369 submissions in 2003. So far this year there have been 198, giving an expectation of 380 in 2004.

   The editors are pleased with the new web-based submission system. The time to a first decision used to be more than 90 days. In 2003 this was 75 days and so far in 2004 is 54 days. In 2003 the journal received 499 reviews, with reviewers providing 1.7 per person on average, with a maximum of 9. The journal has a low acceptance rate, with 50 of the 369 submissions in 2003 accepted. This is less than 20% and DW would recommend a target rate of 25-30%.

   There is a publication backlog. In 2003 the time from acceptance to publication was 54 weeks. This will be down to 36 weeks as the Press will publish approximately 300 extra pages in the first two

issues in 2005. The goal is to have the hard copy published 12-16 weeks after acceptance. The online publishing time is 9-10 weeks after acceptance, with a goal of 6 weeks. An article could be published 4 months after submission is everything goes well. DW thanked the Press for their good work in the collaboration.

Gunilla Rosenqvist retired as Editor last fall. Naomi Pierce will begin as Editor in September. DW thanked both for their work and willingness.

3. Ken Otter (KO) gave the Newsletter Editor's report.

The Newsletter's main functions, in addition to carrying Society news, are to publish book reviews, conference and workshop reports and commentaries. It should appear twice a year, with the June and December issues of the journal. The target is to have 4-5 book reviews, 1-2 commentaries and 1-2 conference/workshop reviews per issue. KO encouraged members to register their interests so he can build a database of reviewers. Past Newsletters are available in an on-line archive at the newsletter website.

4. Walt Koenig gave the Treasurer's report.

The Society's finances are in good shape, with around $130,000 in the bank. The journal is now making a profit, from which the Society receives around $20,000 per year. Members are encouraged to make suggestions to the Executive on how to spend the money.

5. Ethodata.

JB reported on this new project to set a standard for behavioral data (see announcement on page 5-6). Please consult the website and give feedback to JB. (http://ethodata,comm.nsdl.org)

6. Future meetings.

JB reported that the 2006 meeting cannot be held at Cornell and so the dates have been swapped with Tours, originally planned for 2008. Marc Théry is leading the organizing committee for Tours 2006. Preparations are well underway and a leaflet was distributed at the meeting. The Society Executive is very impressed with the state of preparation and with the meeting site.

7. There was no other business.

Paul Ward
ISBE secretary

Reports from the Editor-in-Chief, Behavioral Ecology

Outgoing Editor-in-Chief's Report: The State of *Behavioral Ecology*

The biennial meetings provide an opportunity to report to the membership of ISBE information about how *Behavioral Ecology*, the society's journal, is faring. The 2004 meeting in Jyväskylä was the first chance the editors have had to assess two major changes associated with the journal; the switch to the web based submission system and the change in editorial structure (from offices in both Europe and North America to the Editor-in-Chief model). Discussions before and during the meeting indicate that from nearly everyone's perspective, the changes made have been good ones and the journal is very healthy.

Oxford University Press, the publisher of *BE*, is quite pleased with the journal. Cathy Kennedy, Oxford's representative, reported that institutional subscriptions have continued to rise, in opposition to the trend for most other journals. The citation rankings are steady at about 2.4-2.5, putting *BE* ahead of *Behavioral Ecology and Sociobiology* and on even footing over the past two years with *Animal Behaviour*. Since 2002 when the journal earned back the initial start-up cost, it has also been making money, to the benefit of both Oxford Press and ISBE.

The health of the journal is also evident to the editors. In 2003, the journal received 363 submitted papers, an increase of approximately 25 over the previous year. At the time of the meeting, nearly 200 submissions had been received, and we are projecting handling about 385 papers this year. This load has significant effects on the competitiveness for acceptance; so far, we have accepted 50 of the papers submitted in 2003 (14%). A sizeable number of papers are still in revision and may be accepted, but we anticipate a final acceptance rate for 2003

submissions of less than 30%.

The interest in publishing in *BE* has created some growing pains for the journal. Each editor is handling over 50 MSs a year, and many of these are being evaluated several times. Despite that, the web system has streamlined our work load and dramatically improved decision times. For example, in 2001-2002 we estimated the time from authors mailing their MS to when they received their first decision averaged over 3 months. In 2003 with the web system, we averaged 75 days to first decision. So far this year, the turnaround has averaged 54 days, although that will likely increase some as the decisions that are taking more time are finally made.

A second problem we have wrestled with is the time from acceptance to publication. In early 2003, accepted papers were taking over a year to be published. We have increased the size of the journal (300 pages will be added in issues 1 and 2 in Volume 16) and improved processing. Currently the time from acceptance to print is about 35 weeks. In addition, we have added online publishing of papers as soon as corrected proofs are returned. Over 55 papers are currently available ahead of print on the journal's web site and they are being posted there about 9 weeks after final acceptance. Our target, hopefully to be achieved in 2005, is to publish accepted papers online within 6 weeks of acceptance and in print about 16 weeks after acceptance. This means that if an author produces an exceptionally well constructed paper, it could appear online as soon as 4 months after submission and in print within 6 months.

All this has taken hard work by many people. First, the production office of OUP deserves many thanks for reorganizing and greatly improving the flow of papers into the journal. Second, many of you have helped by reviewing papers for us. We requested reviews from 599 reviewers in 2003, and most returned those reviews in a timely fashion. Finally, the 7 editors for the journal have worked extremely hard. Special thanks go to Gunilla Rosenqvist who retired as editor in fall of 2003 after serving more than the normal term. Goran Arnqvist replaced her in January of 2004. My term as Editor-in-Chief ended at the Jyväskylä meeting and Andrew Bourke will take on that role for the next 2 years. Naomi Pierce will take my place as regular editor starting 1 Sept. 2004, and we will soon be recruiting a new editor to help with the increased load of MSs.

Behavioral Ecology continues to be an excellent publication of which the ISBE and Oxford Press can be proud. Let's hope you create some new challenges for the editorial team by submitting all your best stuff there!

David F. Westneat
Outgoing Editor-in-Chief, Behavioral Ecology

Incoming Editor-in-Chief's Report: Directions for *Behavioral Ecology*

Dave Westneat has described very clearly the recent changes to the way *Behavioral Ecology* operates, so there is no need for me to repeat these here. Over the next two years, more changes will follow. The Editors and I plan to implement these in consultation with the ISBE executive. Since our plans are not yet finalized, I cannot be specific here, but we plan a series of incremental changes, all with the aim of continuing to improve the journal. We also aim to communicate our decisions and thinking in future issues of this newsletter, so please watch this space. Let me add a few other points here. First, I would like to remind you that *Behavioral Ecology* takes review articles. I encourage you to submit your reviews to us, especially if they involve new ideas, or new ways of synthesizing familiar data. Second, the journal has a new Editorial Assistant, Jenny Fulford. Jenny will be working with me, and will be the main point of contact for many authors. Please join me in welcoming her to her post. Finally, I would like to record my grateful thanks to Dave, who, as Editor-in-Chief for the past two years (and as an Editor before then), has rendered excellent service to the journal and to ISBE and leaves his editorial role with the journal in great shape.

Andrew Bourke
Editor-in-Chief, Behavioral Ecology

ISBE conference Review

Behavioral Ecology Surfaces in Finland: ISBE 2004

"*When I first visited the University of Oulu, Finland, in 1983, behavioral ecology was an underground science.*" This startling statement (by Dov Lank) brought to an abrupt halt the conversation on the finer and possibly embarrassing points of sauna etiquette that the four of us had been carrying on. Along with our luggage and a variety of perspectives, we were crammed into a rented Citröen C3, chugging across Finland on the way to ISBE2004. Two of us (DL & Ron Ydenberg) were veterans with a long association with behavioral ecology and with Finland, while two (Kim Mahot & Andrea Pomeroy) were graduate students making their first visit to a major international conference. Two were male and two female. Two knew everybody (or thought they did), and two were neophytes who knew nobody (or thought they didn't). Our tiny car provided a useful if somewhat intimate opportunity to anticipate (during the drive to Jyväskyä) and reflect on (drive back to Helsinki) the ISBE experience, inspired by the landscape of forests and lakes in the lingering northern twilight of the land of Sibelius.

As graduate students in a large and active behavioral ecology group KM & AP looked dubious. "*Underground science!!!?*" "*Bizarre, but true.*" DL continued. "*Students at Oulu would lock their doors and draw the curtains to pore over forbidden texts on optimal foraging, kin selection and parent-offspring conflict. They had to be furtive because Erkki Pulliainen, Head of the Zoology Department, did not believe that the kinds of questions posed by behavioral ecology could be addressed scientifically. He got into a major argument about this with a bright graduate student, who subsequently left Oulu and finished his PhD at the more sympathetic University of Uppsala.*" Twenty-four years after defending his thesis, Rauno Alatalo, now a Finnish Academy Professor, led a local committee including Johanna Mappes, Janne Kotiaho, and Hannu Ylönen in organizing our society's fabulous 10th biennial meeting, ISBE2004, in Jyväskylä, Finland.

This meeting was marked by professionalism, attention to detail, and innovation in every regard, including web-based registration, abstract and talk submission - about half of the 330 talks were submitted in advance. The superb lakeside Jyväskylä "Paviljonki" conference center included space to display all 400+ posters for the entire meeting, rooms for plenaries, five concurrent paper sessions, as well as a lunch and banquet facility. Most hotels were located conveniently nearby. In spite of the closure of the Jyväskylä airport, more than 910 persons registered, well up from the 700+ two years ago in Montréal. Attendees were skewed towards the young (mode 30–34), particularly so for females, if the age distribution sampled from 118 persons in a lunch line provides a representative sample (Fig. 1). The central network for receiving and distributing presentations worked near-perfectly (a few videos were apparently lost in Mac-PC conversion), and the projection facilities were great. Andy Horn looked back at a full-frame picture of a ca. 8 m high tree swallow looming behind him and claimed to feel like the incredible shrinking man.

Despite thematic organization of the paper sessions at conferences, substantial fractions of the audience move between sessions. The program listed the titles of all 5 sessions on facing pages, allowing for rapid planning and execution of one's movements. (A trade off of this compact format was that only each paper's presenter could be listed in the program - even when not the first author. However, the excellent indexing and cross-referencing of the Program and Abstract booklets more than made up for this.) As of this writing, the meeting's program is still available on line at www.ISBE2004.com.

Those who think our field remains dominated by sexual selection in birds may pursue their complaints. Indeed, few facing pages of the Abstract book lack at least one talk on birds. However, a closer look at this program – or at recent issues of "Behavioral Ecology" – shows that the taxonomic and subject diversity of the field is increasingly diverse. The organizers capitalized on this with their choices of plenary speakers, whose well-attended presentations covered spiders and their webs as behavioral adaptations (Fritz Vollrath), explorations of intra-colony kin conflict in ants (Lotta Sundström); the continually evolving mechanism responsible for the maintenance of behavioral/color morphs in male and female fence lizards (Barry Sinervo); the potential utility of individually-based models for conservation (William Sutherland); the higher power potentially obtained by using

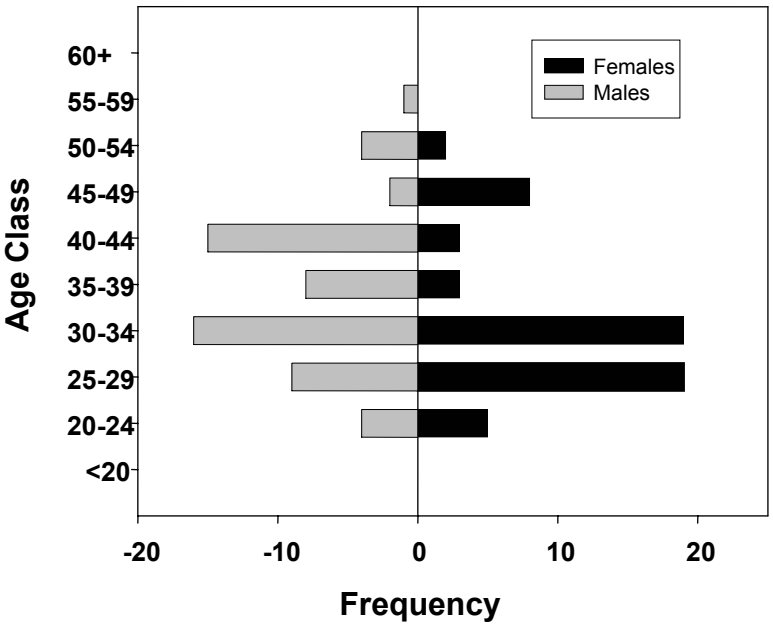


Figure 1. Age distribution of behavioral ecologists attending ISBE 2004. n=58 males, 58 females, sampled in Thursday's lunch line at the conference center.

molecular data to reconstruct pedigrees rather than analyzing effects of indexed relatedness (Josephine Pemberton); the role of MHC genotype with respect to mate choice in sticklebacks (Manfred Milinski); and, yes, one on birds (but not sexual selection), when Vladimir Pravosudov described his elegant work on spatial memory and food caching in tits and jays.

The Hamilton lecture was most appropriately presented by Mary Jane West-Eberhard, spiced with personal stories including a description of a dinner she arranged between Robert Trivers (the Hamilton lecturer in 2002) and William Hamilton in her Cambridge apartment, circa 1970. She developed her view that phenotypic plasticity, including behavior, is paramount in guiding the evolution of developmental mechanisms on which natural selection acts, and must be considered as leading evolutionary change, rather than being simply a consequence of selection on genetic variation.

Few scientific presentations elicit gasps from the audience, but this happened twice during Keita Tanaka's presentation of videos showing a Horsfield's hawk cuckoo nestling on the slopes of Mt. Fuji. This cuckoo has found a novel solution to the problem of extracting higher rates of resources from its hosts, despite being a brood of size one, after having evicted the host young. The nestling flashes at the nest attendants triangular patches on the underside of the wing that mimic its own gape. The parents try to feed the patches! This is not simply natural history; "experimental invisibility" of patches reduced parental feeding rates, supporting their hypothesized function.

Nor was this the only innovation we learned about at this meeting. We are thrilled to announce that the perennial problem of keeping paper sessions in synchrony at scientific meetings has been brilliantly solved by the ISBE2004 organizers. As at earlier ISBE meetings, speakers were alerted to the approaching time limit by playbacks of animal sounds. At 13 minutes the melodious call of a scarlet rose finch was broadcast throughout the conference center (both in and outside session rooms). This was followed at 15 minutes by the harsher sound of a Black Grouse. The major innovation, however, occurred at 17 minutes, when a carefully-selected three minute sound clip from Sibelius' "Finlandia" blared in all five sessions simultaneously, effectively truncating overly-long presentations, questions or answers. Before the first trumpet phrase of this symphonic fanfare was done, the audience had applauded, and those moving to another room were on their feet. (Behavioral ecologists proved remarkably trainable, and readily caught on to this reliable, cost-free signal.) The three-minute 'Finlandia' clip proceeded from bustling to successively quieter passages, providing a countdown for those moving among sessions and setting an attentive mood for the start of each talk. The music not only synchronized sessions and movements, it was also used to signal the end of coffee breaks, lunch, and the mid-afternoon poster sessions. Organizers of any future meetings, for any society, should take note, and the ISBE2004 organizing committee should submit their approach for publication in "Nature"!

Veteran conference-goers expect to view posters in a hot and cramped space, usually at the end of an already-long day. We're drawn to these events as much by the availability of (sometimes free) drinks as by the science. Poster sessions at ISBE2004 broke with these traditions. Not only were posters featured during three decidedly non-beery mid-afternoon sessions, it was extraordinary that all 400+ were up during the entire meeting, and in quality

space. A thematic arrangement allowed one to cruise areas of interest, and inter-digitated poster numbering along the zigzag aisles cleverly distributed presenters and crowds throughout the entire room for all three sessions. The work of the Jyväskylä Evolutionary Ecology group, recognized as a Centre of Excellence in Finland, were featured in a special poster section also on display throughout the meeting and attended during one coffee break; locals refrained from taking spots in the main sessions. RY recalls that some of these innovations were first featured at the 1988 ISBE meeting in Vancouver, though good as that meeting was, it could not match ISBE2004's size, facilities, or organization.

The meeting's most moving moments came in ISBE President Jack Bradbury's Presidential Address, an eloquent memorial to recently-departed behavioral ecologists. Jack began with a testimonial to his father - a Disney cartoonist and animator - who died last year. Jack also spoke about Andre Brosset, Don Griffin, and of course John Maynard Smith, all of whom are remembered for important contributions to our discipline as scientists and as mentors. Walt Koenig eulogized the late Frank Pitleka in his remarks when awarding the Pitelka Award for the best paper by a recent-PhD published in the ISBE journal *Behavioral Ecology* in the past two years (see below). President Bradbury also ran an efficient lunch-time society general meeting which was without doubt the most poorly attended function of the entire program (see minutes in this newsletter, pages 6-7). Among other bits of information passed on at the meeting is that our journal, *Behavioral Ecology*, has recouped its start-up costs, continues to expand institutional subscriptions (bucking the general trend), and is now showing a profit, about $20,000 of which will flow back to the society annually. The executive requests input from the membership on their thoughts on uses for these funds.

Social activities started off with a Saturday night Champagne and Karelian pastry reception sponsored by the City of Jyväskylä, including brief welcomes and toasts from the Rector of the University and the city's Deputy Mayor. Sunday night brought a 150 person strong visit to a working "sauna museum". In spite of the conversation alluded to in the first lines of this report, KM & AP envisioned a private spa-like setting with ample privacy and fluffy white towels and terry cloth robes. We recently learned that naked bird watching is a growing sport in Finland, but little did they know that when signing up for a traditional Finnish sauna, they were actually signing up for naked behavioral-ecologist watching. To make the experience even more memorable, the museum required queuing and 'naked bending' through narrow entrances into each sauna, followed by 'naked ladder climbing' to get to the upper levels where they were meant to sit. With (we're sure) unintentional irony, our Finnish hosts referred to this as an ice-breaker!!! Given the above-noted age and sex ratios, it is perhaps surprising that the veteran males in our group passed on this event, which was left to the novices. (RY's game theoretic explanation is available upon request.)

Late Tuesday afternoon, participants boarded a fleet of five watercraft for a cruise through the islands of Lake Päijänne. Bouts of precipitation rotated passengers inside and onto the decks, but by the time the boats landed at a local pavilion, it had become an absolutely glorious Finnish summer evening. Several participants swam in the warm waters of the lake, and everyone waited in lengthy cues for drinks and food. Parallel to the beautiful hilltop 'Sugarshack' excursion at the Montréal meetings, and despite assurances to the meeting organizers, the pavilion staff were simply not prepared to distribute drinks and barbeque food to such a crowd at a reasonable pace. Fortunately, the perfect evening, lingering twilight, and the great company kept everyone in good humor. Finnish covers of '70s rock kept the packed dance floor hopping until the last bus took the die-hards home near midnight.

The 'Midsummer Night football tournament with bar and food", lived up to the first, if not the second and third parts of its billing. Some 900 delegates had to be served from a single beer tap, and a single (albeit reasonably large) barbeque. The food service was excruciatingly slow, but fortunately, enthusiasm for the tournament itself, occasional rain notwithstanding, carried the evening. Eight teams played through two rounds, with a dramatic shoot out between "Random Chaos" and Göteborg to determine a semifinal berth in one group. A strong Norwegian team beat Team Canada 2–0 in the final. No report of the tournament would be complete without mention of the Jyväskylä cheerleading squad (Fig. 2), including its pyramid formation topped by the diminutive (physically, anyway) Hanna Kokko.

Our next football tournament (and accompanying conference) will be held in Tours, France, July 23-29, 2006. Marc Théry presented plans for ISBE2006

with its (non-avian) preying mantis logo. ISBE meetings have generally alternated between Europe and North America, and the 2006 meeting was originally slated for Cornell, but complications with facilities necessitated the move to Tours. May we look forward to strains of *La Marseillaise* as we troop between sessions? Cornell, home of past president Steve Emlen and current President Jack Bradbury, will host the 2008 meeting. Veteran and neophyte conference-goers agree that it is a pleasure to belong to a Society whose banquet includes a minimum of speeches and awards, allowing for a maximum of drinking, eating, and conversation. The Pitelka award for the best student paper published in Behavioral Ecology in the previous two years was won by Sarah Pryke, for "Carotenoid status signaling in captive and wild red-collared widowbirds: independent effects of badge size and color", published with Staffan Andersson, Michael J. Lawes, and Steven E. Piper. The Best Poster Awards went to runners-up Kathryn McNamara and Jörgen Sagviknon (€100 plus a year's subscription to TREE); and to winner Lucy Gilbert (a whopping €500)! We thank a very diligent poster committee for their work on this (though some losing entrants questioned the appropriateness of the committee's criteria as described at the banquet: e.g. baseline points = latitude of university; 20 points for cuteness of study animal (-10 points if theory, and -5/extra leg if more than 2 legs; 30 points for cuteness of researcher (-10 if not shown on poster)).

Unfortunately, we had to leave the banquet at midnight to catch our 6:45 AM flight from Helsinki. We piled back into the Citröen, and RY drove through the lengthy dawn while DL dozed, and AP & KM reflected on the meeting:

AP: *It really was quite different than I had expected. I thought it would be mostly about attending talks, but it was more about meeting people. And from visitors to SFU, we knew more people than we expected*

KM: *Yes, and behavioral ecologists as a group are a clumsy lot, as proven by the absence of a single talk in which someone didn't trip up or down the stairs or while entering the room, or a single meal in which no glassware was broken.*

AP & KM (together): *Most surprisingly however, we learned that John McNamara rules the dance floor. Who would have thought?*

Figure 2: Jyväskylä cheerleaders

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BOX 1- The recent development of behavioral ecology in Finland

We can see the effects of the academic feud at Oulu through a brief examination of behavioral ecology's development in Finland, measured as output in specialized journals (no demographic analysis included*). Figure 3 shows the annual rate of behavioral ecology publications with authors listing Finnish affiliations, plus the national total, during three time periods: the 1976–1990 is the "Behavioral Ecology and Sociobiology" only period, the ISBE's "Behavioral Ecology" joined the field in 1990, and we have arbitrarily broken out the past 5 years as indicating the recent state of the science. The first three "Finnish" publications in BES were by Pekka Pamilo (a population geneticist), on ant population structure, in 1979, 1981, and 1990. (Plenary speaker Lotta Sundström, in part from Pamilo's lab, is thus a "second generation" Finnish Behavioral Ecologist). The University of Helsinki was the only institution represented until 1990, the year DL finished his field work at Oulu. By then, Erkki Pulliainen had taken a leave of absence from his professorship to pursue a career as Oulu's Member of the Finnish Parliament, representing the Green Party. His departure allowed Markku Orell's "tit group" to flourish. After its delayed start, Oulu continues a steady rise in publication rates, and behavioral ecologists from the University of Turku also continue to publish steadily in this field.

The first Finnish paper published in "Behavioral Ecology" was on female choice for lek size in Black Grouse, by Alatalo et al. in 1992. After his graduate student career in Sweden, Rauno returned to Finland and took a position at Jyväskylä, where the vibrant research group that superbly organized and graciously hosted this meeting has coalesced. Despite the University's smaller size, the Jyväskylä group has managed a slightly higher rate of specialized publications in recent years than has the flagship school in Helsinki (n.s.). In recent years additional Finnish institutions have also been represented, including the University of Kuopio, the University of Lapland, Abo Akademic University, Sydvast Polytech, the Tvarminne Zoological Station, the Finnish Fish & Game Department, and the National Public Health Institute. This broadening reflects the dissemination of our field by individuals pursuing more diverse careers, as well as the field reaching into new areas, including applied fields such as conservation biology and public health. Over ninety papers published in the two journals now include Finnish affiliations. As also illustrated by ISBE2004, far from being an underground science, behavioral ecology is alive and well, and living in Finland.

* see Kokko, H. & Sutherland, W.J. 1999. What do impact factors tell us? TREE 14:382–384.

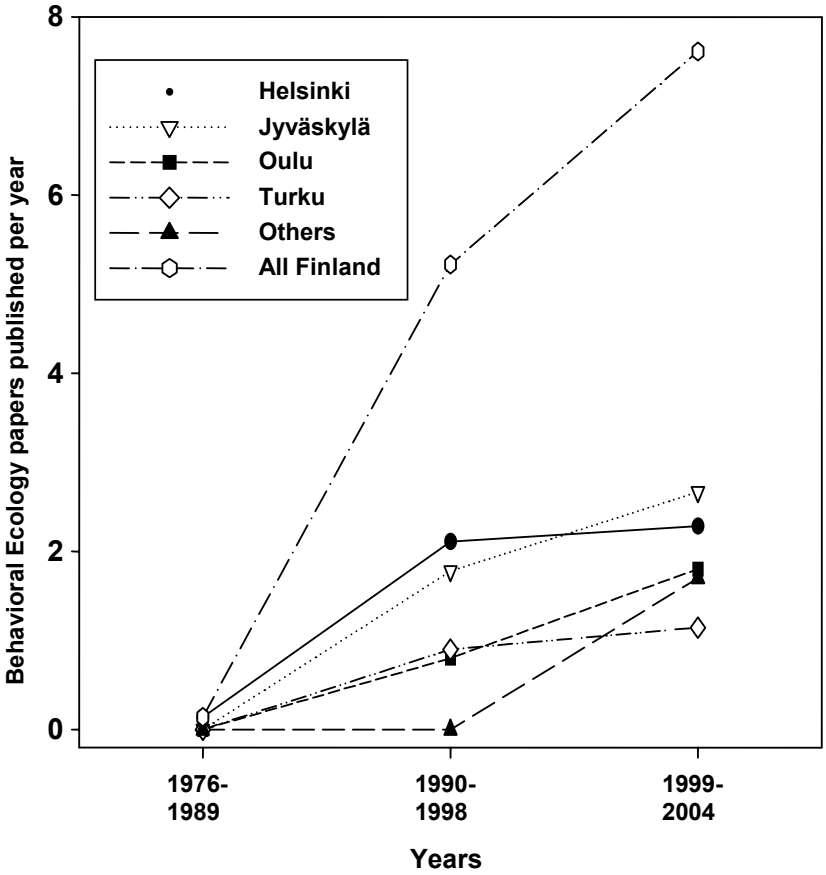

Figure 3. Publication rate of papers in "Behavioral Ecology" and "Behavioral Ecology and Sociobiology" with Finnish affiliations of authors, 1976 -- 2004. Papers with authors at more than one Finnish institution are credited once to each, but count only once in the totals.

Book Reviews

A Challenge Worthy of the Challenger?
Evolution's Rainbow: Diversity, Gender, and Sexuality in Nature and People.

Joan Roughgarden. University of California Press, 2004, 474 Pp.
ISBN 0-520-24073-1 (hardcover)

The title of Roughgarden's book itself is telling—"nature" divorced from "people." In this book, a noted population biologist employs her reputation to advocate for a non-mainstream view of the evolution of sex and gender ("social selection") and for the primacy of "diversity" in the natural world. When reading this book, I could not help but wonder whether I was witnessing the reflections of a biologist who had thought at the population-level of analysis all of her life and who had only recently begun to analyze behavioral events at the level of the individual. Roughgarden's writing is highly personal and self-conscious, a style that may lead some to underrate the author's well-documented and carefully crafted perspectives on sexual and reproductive differences in human and non-human animals, especially those topics related to same-sex and intersex phenomena.

Most behavioral ecologists, however, will be armed with knowledge of the pertinent literature to contradict Roughgarden's critique and ultimate rejection of Darwin's theory of sexual selection. A major component of her arguments against sexual selection relies upon the rejection of competition as a fundamental evolutionary force determining sexual and reproductive decisions. Roughgarden envisions a sexual and reproductive landscape of interindividual cooperation rather than interindividual competition, a view that many behavioral ecologists will meet with skepticism.

On the other hand, behavioral ecologists are likely to agree with Roughgarden's view that students of sex and reproduction would be well advised to place greater emphasis upon the causes and consequences of diversity in the evolution of phenotypes (niches). The study of diversity has a very long history indeed in ecology (e.g., Hutchinson, 1959), and the early emphasis upon species diversity can lead one to ask: Why are there so many alternative sexual and reproductive phenotypes? Early work in ecology attempted to link the phenotype with the niche in heterogeneous regimes (e.g., the concepts of "fitness sets" and "norms of reaction"), and Roughgarden, like all ecologists, is understandably concerned with the extension of these domains of investigation.

In *Evolution's Rainbow*, Roughgarden attempts to deconstruct Darwin's theory of sexual selection and "good genes" models of mate choice, arguing that sexual orientation, mate choice, and other sociosexual "decisions" (conscious or otherwise) may be a function of factors other than conventional interpretations of intersexual (mate choice) and intrasexual (same sex competition for mates) selection. Roughgarden provides a service in reminding us that cooperation as well as competition may be favored by evolution, particularly in relation to the evolution of sexual and reproductive responses. However, she displays an essentialist quality, very common in the social sciences and humanities (e.g., Sussman and Chapman, 2004), whereby cooperation is presumed to be preferable to competition, that it is the driving (evolutionary) force of some societies, or that it is in some manner a greater good.

Ecologists have established that, in some environmental regimes, the benefits of cooperation outweigh the benefits of continuing to engage in fights or contests. Thus, cooperation will sometimes be to the individual's benefit, sometimes not, and the environmental (abiotic and biotic, including social) regime will determine these differential costs and benefits. In her book, Roughgarden does not place sufficient emphasis upon the environment's role in behavioral expression, an unfortunate shortcoming since the responses of greatest interest to her (gay, lesbian, and transgender action patterns, cognitions, and emotions) may often be facultative ones.

As a component of her advocacy of diversity, Roughgarden attempts a hermeneutics of Darwin's theory of sexual selection with barely a nod to the developments in this field of study since 1871 (e.g., Andersson, 1994). More disturbing, perhaps, is Roughgarden's failure to mention recent work on sexual conflict and selfish elements and the possibility that numerous characteristics of males and females may be the result of antagonistic coevolution

(Rice, 2000). Rice, Holland, Gavrilets, and others, for example, have begun to investigate the relationship(s) between sexual selection and sexual conflict (e.g., as these processes relate to anisogamy). However, Roughgarden, unfortunately, does not assess the potential import of sexual conflict for the expression of alternative sexual and reproductive phenotypes. For example, she discusses the consequences of variation in sex ratios only in relation to sex-role reversal, asserting that causal mechanisms have not been investigated. Numerous empirical studies, however, suggest that a broad range of alternative sexual and reproductive phenotypes represent responses to variations in sex ratios within groups and/or populations, possibly as a function of local (within-patch) competition (see, for example, Emlen and Oring, 1977; Vasey, 2000; Shuster and Wade, 2003; Forsgren et al., 2004).

Because of her own personal history, Roughgarden is particularly concerned with topics related to sexual orientation, transsexuality, and intersex. A few hypotheses for these phenotypes (e.g., deception, cuckoldry) are mentioned and dismissed by Roughgarden in favor of explanations favored by "social selection," sexual and reproductive decisions favoring cooperation. Ideas similar to Roughgarden's "social selection" have been introduced into the literature by others (e.g., Gross, 1996; West-Eberhard, 1979) who point out that social (interindividual) and ecological (resource dispersion and quality) interactions drive individual phenotypic variation within the sexes. Other possible explanations for same-sex sexual preferences mentioned by other authors are not considered by Roughgarden (see, for example, West-Eberhard, 2003; Blanchard, 2004). Nonetheless, consistent with Roughgarden's critique, theoretical and empirical research should be expanded in an attempt to describe the differential costs and benefits of alternative sexual and reproductive phenotypes. These (genetic and phenotypic) advantages and disadvantages will accrue to actors and all affected by their decisions, kin as well as non-kin (West et al., 2002).

For example, perhaps a homosexual is not really a homosexual but is expressing another's "extended phenotype" (Dawkins, 1999). Or, perhaps homosexuality is a "green beard" (Dawkins, 1999), signaling some likelihood of shared genes with other bearers of "green beards" but not necessarily a phenotype engaging in selfish reproduction. Another possibility is that certain alternative sexual or reproductive phenotypes such as those of interest to Roughgarden may be counterstrategies responding to costs imposed by the opposite sex with the effect (not necessarily conscious) of attracting less harmful opposite-sex mates. By extension, in some conditions, homosexuality might represent a "waiting game" to attract opposite-sex partners. Indeed, within-group same-sex partner preference by one or both sexes might induce some group members to emigrate in search of phenotypically and/or genotypically compatible opposite-sex mates or might induce immigration by individuals dispersing from other groups seeking sexual (e.g., opposite-sex copulation) or other reproductive (e.g., alloparental care) opportunities with receptive partners.

It seems likely that *Evolution's Rainbow* will serve not only to reinforce ecology's historical concern for diversity but also will initiate the investigation of untested or relatively overlooked hypotheses for the expression of alternative sexual and reproductive phenotypes in all animals, including humans. While many of the book's concerns have already been integrated into the literature on sexual selection (e.g., alternative interpretations of mate choice mechanisms such as "sensory exploitation"), neglected topics (e.g., identifying the endogenous and exogenous factors inducing bisexual behavior) may soon receive well-deserved attention by researchers in the mainstream of behavioral ecology. Roughgarden's book stands as a helpful generator of discussion and ideas as well as a reminder of the importance of innovation and infrequent events in the evolution of sociosexual responses, topics fundamental to evolutionary biology and behavioral ecology (West-Eberhard, 2003, pp. 197-374).

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Advances in Insect Chemical Ecology

Ring T. Cardé and Jocelyn G. Millar (eds.). Cambridge University Press, 2004. 341 Pp.
ISBN 0-521-79275-4 (hardcover)

Chemical communication is a vitally important component in the lives of all organisms. The identification of bombykol (Butenandt et al. 1959), the sex pheromone of the silk moth, *Bombyx mori,* sparked a cascade of research into the roles of chemicals in allowing animals to interact with one another and their environments. Innovative collaborations between biologists and chemists have resulted in rapid progress, particularly in the chemical ecology of insects and other arthropods, over the last 45 years. It has become increasingly difficult to keep abreast of the advances made in various taxonomic groups. Even those of us who actively research questions in chemical ecology tend to concentrate our efforts on one or a few insects, and may not be aware of new information for other taxa. For workers whose research touches only lightly on chemical ecology, the volume of literature can be overwhelming. This book provides an overview of several wide-ranging topics in this diverse and (to me at least) fascinating field.

The book contains eight reviews of major areas in arthropod chemical ecology and examines both proximate and ultimate questions. Chapter 1 looks at the tremendous diversity of plant chemical defenses against insect herbivores. Chapter 2 integrates a third trophic level, discussing the use of plant defensive compounds as host location cues by parasitoids. Two chapters examine chemical communication in arachnids, both mites (Chapter 3) and spiders (Chapter 4). Chapter 5 discusses plant chemicals used to attract insects for pollination, namely floral odors. The sex pheromones of various families and species of cockroaches are covered in Chapter 6 and the complex chemical relationships of tiger moths with their host plants in Chapter 7. The volume concludes with an overview of the selective pressures that govern pheromonal communication in moths. The book should, perhaps, be titled "Advances in Arthropod Chemical Ecology"; the inclusion of mites and spiders makes that term more appropriate and it informs a wider audience of the appeal of the book.

As a researcher with a deep interest in chemical ecology, I found all of the chapters fascinating reading. The chapter on tritrophic chemical communications stands out for me, no doubt because of my own interest in this area of research. Ted Turlings and Felix Wäckers provide an excellent overview and comparison of two plant strategies: attracting parasitoids and predators using induced volatiles and encouraging the natural enemies to stay on or near the plant by providing them with nectar. The chapter also provides some good suggestions for future research directions, and some cautions against neglecting the interests of the plants in these systems. I also found the chapters on semiochemical use in mites and spiders intriguing, as I have heard

relatively little about the chemical ecology of these taxa.

The editors' stated intent is to provide in-depth reviews of active research areas in arthropod chemical ecology, and they have achieved that objective. While only some of the areas of current investigation have been addressed, an excellent overview of approaches and new knowledge is provided. In addition, the editors visualize this as the first volume in a series on arthropod chemical ecology. Subsequent volumes will, presumably, expand on the theme and provide further reference material for any whose research interests incorporate some aspects of chemical ecology. In spite of the emphasis on arthropods, this book may also be of background interest to non-entomologists, as developments in the study of insect chemical communication often lead to new approaches to the study of olfaction and taste in other animals.

I found this to be a well organized book. While the topics are wide-ranging, the chapters are edited well and formatted consistently. The use of consistent heading and subheading formats is extremely helpful in this type of book. Any typographical errors did not interfere with my understanding of the material, although those more familiar with some of the topics may find more than I did. Each essay begins with a short introduction to the authors' interests and approach to the subject at hand. Ample references are provided in each review, allowing the reader to follow up on any particularly intriguing ideas. I was also pleased by the inclusion of an index. Frequently, edited collections of reviews neglect to include a volume index, making it difficult to track down that crucially important piece of information later on.

In summary, this book provides an easy-to-read, well edited overview of a variety of current topics in arthropod chemical ecology. I would recommend it for anyone wishing to broaden their knowledge of various approaches to the study of chemical ecology or the range of semiochemicals used by plants and arthropods. Graduate students and upper level undergraduates with an interest in the subject may also find this to be a useful addition to their libraries. The list price of US$90.00 is reasonable, though perhaps a little high for purchasers who are really only interested in one or two chapters. As a reference on current research in chemical ecology, it is definitely a worthwhile purchase.

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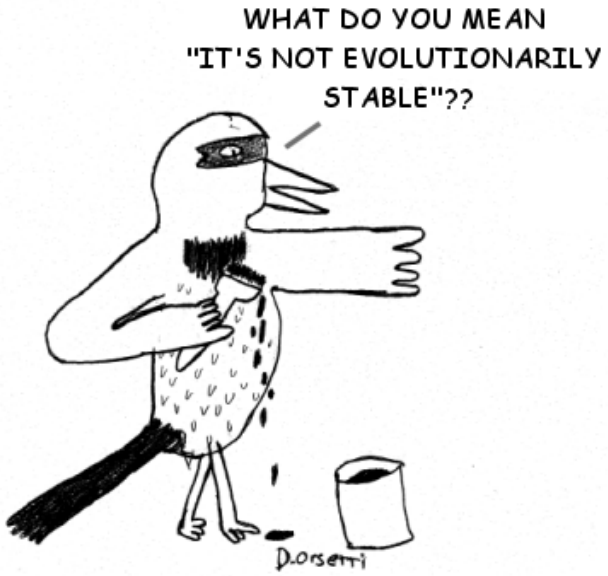

Cartoon by Damon Orsetti

Animal Innovation

Simon M. Reader & Kevin N. Laland, Editors. Oxford University Press, 2003. 360 Pp.
ISBN 0-198-52622-9 (paperback)

I really enjoyed reading this book. The pleasure stemmed from both specific and general features: the contents of this book were stimulating due to the sheer number of anecdotes of animals being innovative (for which, in many cases, read 'clever') and from the feeling that this is a field on the edge of discovery. More specifically, I finally found the reference to one of my favorite examples of animal innovation: house sparrows flying in front of an electric eye to open a cafeteria door (Breitwisch and Breitwisch, 1991). There were many more that were new to me, across a score of animal groups (all vertebrates). While the collection of such anecdotes is age-old, this book provides evidence that there is increasing enthusiasm for a science of animal innovation. All of the chapters are eminently readable, so this could serve as additional reading on an undergraduate course. However, the book also contains a wealth of research suggestions for anyone on the lookout for a challenging project.

The book opens with a necessary consideration of the terminology associated with any discussion on animal innovation. As with most apparently semantic debates outside one's own field, this seemed somewhat turgid in places, but was, in fact, mostly useful. Presumably because of this, the subsequent authors happily devoted little space to explaining their own concepts of innovation (although there seemed to be considerably more consensus than Chapter 1 led me to expect). In brief, innovations cover animals behaving in a novel way, using a familiar technique to solve a novel problem or the spread of novel behaviors through a group (and more, see Chapter 1).

The body of the book is roughly split in three: comparative and evolutionary analyses, causation, and the relationship with cognition. There are two final chapters, one on human creativity and one a 'Discussion'. Although a feature common to all was the refrain 'there are more questions than answers', each of the chapters made a different and interesting contribution. After running through the now-to-be-expected caveats about carrying out correlational analyses, Levebvre and Bolhuis use the correlation between feeding innovation rate and other cognitive measures in birds to address issues concerning cognitive modularity. They show, for example, that innovation rate correlates positively with tool use, learning speed and reversal learning but not with food storing. These results offer support for the notion that the neural systems enabling innovation and general learning abilities are separate from the learning and memory required for stored food retrieval, a contribution to an on-going debate (see Trends in Cognitive Sciences 2002 for several articles). Sol's correlational data (largely on birds) shed light onto the ecological and evolutionary consequences of innovatory propensity. Behavioral flexibility is correlated with the ability of species to invade new environments and with species richness. Like all of the authors, Sol points to the gaps in current knowledge, to possible future work and, in this case, the potential value of such work to our understanding of biodiversity. Reader and MacDonald show that primate innovation rate correlates with neocortex size but, somewhat at odds with Sol's findings and with suggestions from the primatologists later in the book, not with range size or climatic variability.

One of the best known models of behavioral plasticity is song learning and Slater and Lachlan's chapter neatly uses the song learning data to examine the different possible causes for changes in song: immigration, innovation, invention and improvisation. Novelty in song appears to be mostly associated with immigration and the most common innovation is rather minor, simply a deletion or a substitution of a song type arising through errors in learning. As other authors note, there may be considerable costs of novelty. In the case of song, communication may be impaired through decreased recognition and there is little evidence for selection either for or against innovation.

Lee notes that the fitness costs and benefits of innovatory behavior may be difficult to quantify, not least because there is evidence from primates that these likely vary between the sexes and between young and old individuals. Greenberg emphasises that early development as a promising stage to focus on for understanding the origins of innovative behavior, particularly in songbirds.

One of the big problems with innovation is how to

determine its origin and then its movement through a population. Ideally, this would be done via experimentation but this is clearly logistically problematic in the field. Both Galef (food preferences in rats) and Laland and van Bergen (route and maze learning in guppies) describe useful experimental laboratory systems for investigating both innovation and social learning.

Without meaning to trivialize it, the remainder of the book focuses on innovatory behavior in primates. The ideas mostly echo those of the earlier chapters, but with the expected provision of many more anecdotes. However, prominence is given to innovation in a social context (e.g. for use in deception, in the chapter by Byrne). The penultimate chapter on human creativity by Simonton (which includes 29 self-citations) provided facts I immediately passed onto colleagues: the most prolific creators have the most successes but they also have the most failures and, to offer hope for the future, the likelihood of coming up with a successful idea does not diminish as one's career progresses!

In summary, I thought this book provided a pile of fun information on animal behavior as well as research challenges for the future. About how many edited volumes can you say the same?

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A Brand New Bird: How Two Amateur Scientists Created the First Genetically Engineered Animal.

Tim Birkhead, Basic Books, 2003, 268 Pp.
ISBN 0-465-00665-5 (hardcover)

Editor's note – this book is published in Europe under the title "The Red Canary", Weidenfeld & Nicolson (hardcover) and Phoenix (paperback)

At an oral exam for a doctoral student studying an avian pathogen, I started my questioning by asking for a brief history of the study of this organism—who had described it, when, and under what circumstances. My question was met by a blank stare from the student. Finally his advisor chipped in "Microbiologists don't concern themselves with history".

I was quite surprised at this view of science. This professor was basically saying that there was nothing to be learned from previous generations of biologists. We move forward from our platform of knowledge - how we arrived at this point is of no concern.

I think this attitude is less pronounced among evolutionary and behavioral biologists. At least few behavioral ecologists would be brazen enough to articulate a lack of interest in the history of the field. After all, doesn't virtually every paper begin with a tribute to Darwin? Despite the lip service paid to the history of our field, however, I find an appreciation for the historical development of disciplines to be appreciated less and less by young biologists. The view of my microbiology colleague seems to be catching on in behavioral ecology. Thus, Tim Birkhead's book "A Brand New Bird" was a most welcome addition to my bookshelf.

On the dust jacket, the publishers describe the book as a narrative of the efforts to create the first transgenic animal, decades before the term "genetically modified" became the realized dream of industrial agriculturalists and the battle cry of environmentalists in their resistance to a perceived corporate onslaught on the environment. Birkhead's book is indeed a detailed account of how a school teacher in Bremen, Germany, Dr. Hans Duncker, teamed with a local canary fancier, Karl Reich, to create the first red canary by crossing domestic Common Canaries (*Serinus canaria*) with the not-very-closely-related Red Siskin (*Carduelis cucullata)* and then selectively backcrossing the hybrids with canaries to eliminate all siskin genes except the gene, or genes, for red plumage. Birkhead's account of the lives of these men and the world in which they lived before and during the rise of the Nazi Party in Germany is fascinating. But

more than anything, the race to create the first red canary provides a backdrop to a lucid account of the development of the study of avian genetics and, particularly, the genetic basis of song and plumage coloration in the early twentieth century. Birkhead deftly interweaves an account of the life and work of Duncker with a history of the early application of Mendelian genetics, the growth of eugenics in pre-Nazi Germany, and finally the ultimate application of eugenic ideas by the Nazis, which may or may not have included active involvement by Duncker. It is a wonderful mix of science, history, and story telling.

Birkhead shows us how a belief in genetic determinism guided the work of Duncker and contemporary geneticists. Beginning with his efforts to breed a canary that would sing the song of a nightingale and continuing in his quest to "build" a red canary, Duncker held to the idea that careful breeding and selection for desired genes was all that was required to achieve phenotypic perfection. The environment was of no real consequence. Despite the obvious need for song tutoring to achieve song production, the idea that genes trumped all other factors remained nearly an obsession and caused, as Birkhead points out, the ultimate failure of Duncker's red canary effort. Even when Duncker created canaries with the potential for red coloration (presumably with enzyme systems for conversion of yellow dietary precursors to red feather pigments that had been captured from their siskin ancestor), without access to proper carotenoid precursors in the diet, the birds would not achieve a bright red coloration. In the mind of Duncker and the canary breeding community of the early 20th century, bird fanciers who created such red canaries through diet supplementation had cheated; they were discredited and disqualified from canary competitions. True perfection in birds, and, in the misguided mind of the Nazis, in human beings, could only result from proper breeding.

As a researcher who works on the genetic and environmental determination of red coloration in cardueline finches, I found the account of the research of these German scientists to be of more than historical curiosity. The studies conducted by these biologists (yes, I recognize them as research biologists and not simply bird fanciers – a courtesy not extended by the professional biologists of the early 20th century) and the observations they made remain some of the best studies of the genetic components of song and plumage ever conducted. No one has come close to repeating the artificial selection on ornamental traits conducted by Duncker, Reich, and contemporaries and research biologists would do well to pay attention to the results of their studies. Unfortunately, not only are the studies of Duncker and Reich published exclusively in German, but they are primarily published in aviculture magazines, most of which are not in university libraries and are now extremely hard to obtain. Birkhead has done the behavioral and evolutionary community a great service by bringing to light this important work. He has fashioned a marvelous account of what can be accomplished with the right collaboration and a lot of hard work. Birkhead's book is also a cautionary tale of dangers of becoming too obsessed with one explanation, particularly when the answer is linked to a political and social agenda. This is a book that every behavioral ecologist should read.

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Ecological Orbits: How Planets Move and Populations Grow

Lev Ginzburg & Mark Colyvan. Oxford University Press, 2004. 166 + xv Pp.
ISBN 0-19-516826-X (hardcover)

It is a long running joke that biologists have physics envy, a desire to have relationships among biological phenomena that are so precise that they attain the status of natural laws. Of course, one can rightly ask whether it is possible to have laws in a science such as population ecology where statistics are required to analyze data. Strong relationships in ecology often show at least a small amount of spread, and none are sufficiently fundamental to warrant the status of laws. Undaunted, Ginzburg and Colyvan have looked at physics and asked two questions: whether certain rules of biology show any parallels with the laws of physics; and whether ecologists can then develop a new research paradigm to understand population dynamics based on the biological "forces" they have identified. Ginzburg and Colyvan start their book with a brief explanation of planetary motion, followed by a similar brief explanation of how populations grow, and then go on to suggest how the former might be used as a metaphor for the latter.

Having embarked on a mission to seek parallels between physics and ecology, the first point to address is whether there is anything in ecology that is analogous to the laws of physics. In Chapter 2, Ginzburg and Colyvan explain Kepler's laws of planetary motion and Newton's laws of motion. They also outline how these laws differ from the earlier ideas about moving bodies put forward by Aristotle, and how laws differ from regularities such as the "Titius-Bode law", a 17th century idea that attempted to explain the spacing of planetary orbits.

As candidate laws in ecology, Ginzburg and Colyvan suggest some of the numerous allometric rules that have been observed: e.g. Kleiber allometry, the scaling of metabolic rate to body size; the scaling of generation time to body size; Fenchel allometry, the scaling of reproductive rate to body size; Damuth allometry, the scaling of density in mammals and birds to body size; and Calder allometry, the scaling of population cycle periods to body size. Some of these allometric rules are more precise than others; specifically, Kleiber allometry shows a particularly tight relationship across a wide range of organisms from protists to mammals. Later in the book, the authors actually suggest that Kleiber allometry may indeed be the most fundamental of these rules, and that the rest can be explained, at least in part, by it.

A standard strategy when standing accused of being envious, is to deny that there is anything special about the supposed target of the envy. Ginzburg and Colyvan take on the popular (mis)conceptions of physical laws and ask how rigorous they truly are. Are they exceptionless? Falsifiable? Distinguishable from mere regularities? They are not exceptionless, because they are usually stated in reference to ideal circumstances. They are falsifiable in spirit, although, in reality, any falsification usually results in supplementary adjustments to get over any difficulties rather than wholesale rejection of the law. When it comes to distinguishing laws from regularities, the usual appeal is to the explanatory power of laws; however, as Ginzburg and Colyvan point out, the explanatory power of laws rests heavily on the lack of any more fundamental explanation. As an example, they cite the motion of colliding billiard balls. One can rely on the law of conservation of momentum to explain what will happen when one ball collides with another, but we still don't understand why momentum is conserved, merely that it is.

One can start to see some obvious parallels with population ecology. A simple model such as the logistic growth model can be dismissed as being too simple to be realistic. A reasonable response might be that it describes what goes on in ideal circumstances. The Lotka-Volterra models don't match reality, because they predict instantaneous responses to changes in competitor or predator densities. Rather than rejecting the hypothesis we add modifications, such as time delays. An elephant has a lower metabolic rate for its body size than a mouse. That's because of allometric scaling. Why? Because metabolism shows a ¾ power relationship with body size. Thus, it isn't hard to see how Ginzburg and Colyvan could make a metaphorical connection between orbiting planets and cycling populations.

Having set the logical stage for a kinship between Newtonian mechanics and population ecology in chapters one and two, the authors have one more task before launching full-on into their population

models. Prior to Newton and Galileo, the Aristotelean world view suggested that forces give objects velocity, and falling bodies descend at a constant rate proportional to their mass. Newton overturned the first idea when he realized that forces give objects acceleration, and Galileo overturned the second by demonstrating that bodies fall at a rate independent of their mass. Ginzburg and Colyvan see the per capita reproductive rate of populations as analogous to a body being acted on by a force; a force acting on a population should lead to an accelerated decline of the reproductive rate rather than a simple exponential rate of decline. In other words, a logarithmic plot of population size against time should show a parabolic rather than a linear decline. As evidence, the authors present Slobodkin's results on the effects of starvation in hydras, which show a parabolic decline of population size over time. Thus, Ginzburg and Colyvan suggest we really ought to be looking for second order effects when we model population change. I think there is a weakness with the analogy here, which I will discuss in detail further on.

In the middle chapters of the book, Ginzburg and Colyvan discuss the details of three "forces" that they see operating within populations. The first of these is energetics. An individual can be compared with a weight hanging on a spring. Metabolism (gravity) pulls its energy reserves down, while the consumption of food (the spring) pulls them up. Ginzburg and Colyvan see the balance between the two as the net of two accelerations, rather than the net of two velocities. The second force is a maternal effect, which they say is analogous to inertia in moving bodies. Mothers in good condition will produce daughters in good condition; therefore, when resources become scarce, a high quality mother will continue to produce high quality daughters, who in turn will cause a time delay in the decline of the reproductive rate of the population. This force also leads to cycles with a minimum period of six generations, with no need to appeal to external agents (i.e. predators) to drive the cycles. Two-generation cycles can be explained by age-structuring, or cohort effects. The two processes combine to explain the known periods of cycling populations. The third force is ratio-dependent predation. If predators take prey in direct proportion to their own abundance, then it should be possible to see joint exponential growth in the two populations, a possibility that is not allowed in traditional two-species models.

Part of me is left wondering how much of this is new. In particular, I am thinking of time delays and maternal effects. A quick perusal of three popular undergraduate ecology texts confirmed for me that population models often work better when time delays are incorporated (Begon et al., 1996; Ricklefs and Miller, 1999; Krebs, 2001) . Furthermore, the authors, themselves, admit that maternal effects have been known since the mid-1950s, and more recent work has emphasized their importance, although the reception among theoreticians has been poor. Is it fair that this book be criticized for being merely derivative, or should the authors be applauded for bringing attention to ideas that have resisted incorporation in population modeling?

Another part of me is left wondering about the validity of the analogy between population dynamics and Newtonian mechanics. A reference to popular misconceptions and popular culture may be appropriate here. Although Newton showed that Aristotelean mechanics was incorrect – a body with no force applied *will* continue at its current velocity – it is a popular misconception that taking away the force also takes away the velocity. Likewise, non-scientists perceive that an object thrown horizontally off a cliff will travel in a straight line until it slows to a stop and then begins to fall down; picture Wile E. Coyote's many falls off cliffs in his pursuit of the Roadrunner (this isn't just a frivolous aside; I have a point). Ginzburg and Colyvan point out that population cycles are usually asymmetric. They explain that this pattern is reasonable, because although it takes time for a population to ramp up its birth rate, deaths are instantaneous, which brings me to the argument I had alluded to earlier. Slobodkin's hydra data show patterns that look somewhat parabolic, but imagine that you see the world as Wile E. Coyote rather than as Newton or Galileo; Slobodkin's data look remarkably like an object coasting to a halt horizontally then plummeting to the ground. Likewise, in figure 7.1 Ginzburg and Colyvan show a theoretical plot of equilibrium population size (N^*) against additional mortality rate. The traditional curve is a straight line declining from the maximum N^* when mortality is zero, to $N^* = 0$ when additional mortality is equal to r_{max} for the population. The response curve under an inertial model looks very much like Wile E. Coyote's descent off a cliff, and the "realistic expectation" looks similar but with a rounded curve where the

horizontal portion of the trajectory meets the vertical portion. Ginzburg and Colyvan are obviously convinced of the connection between Newtonian motion and population change, but I'm not sure. A starving population will coast along on the energy contained within individuals until they begin to die. Unless there are very striking differences in condition between individuals, most will die within a relatively short time frame. Because you can't be fractionally dead, unlike being fractionally down the cliff on your way to the bottom, we should give more serious thought to the cartoon version of events in this analogy. Perhaps some of the difficulty here comes from trying to separate conceptually effects that act on individuals versus effects operating at the population level. If so, the authors might have worked a little harder to clarify their points.

The writing style of this book was generally quite good. It was a fairly fast read, which might come as a surprise in a book that is largely theoretical. One case of difficult wording stuck in my mind, and I think the problem comes from trying to stretch the analogy of motion to an area that lacks a truly analogous vocabulary. In the last paragraph of chapter six we get the following statement:

> "In all three cases, the forces of which we speak are formally analogous to physical forces in the sense that they result in changes in the growth rate (accelerations) rather than directly affecting the growth rate."

It is difficult at first or second (or third) thought to see how changes in growth rate are different from direct effects on growth rate. Going back through the book I found an earlier incarnation of this statement that helped clarify things a bit but I am certain that the difficulty lies in not having a term that is to reproductive rate as acceleration is to velocity. Perhaps as the theory evolves, so too will the vocabulary.

This book should be of obvious interest to theoretical ecologists. It is certainly accessible to graduate students, and perhaps even to advanced undergraduates. If the ideas work, then perhaps we will see newer more effective strategies for harvesting and management as is the hope of the authors. However, as I tell the students in my undergraduate ecology course, we must keep in mind that models are great, but they really are only hypotheses that require testing and validation. If we think back to what constitutes a law, perhaps it is like a "fact": a fundamental hypothesis that has very strong support. If so, then perhaps ecology can be said to have laws. The candidates proposed by Ginzburg and Colyvan seem reasonable; the task will be to elucidate how the forces of ecology exert their effects on population parameters.

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Bird Ecology and Conservation: A Handbook of Techniques

William J. Sutherland, Ian Newton and Rhys E. Green, Oxford University Press, 2004. 408 Pp.
ISBN 0 19 8520859 (hardcover), ISBN 0 19 8520867 (paperback)

This book is the first of an intended series (Techniques in Ecology and Conservation, William J. Sutherland, Series Editor), each of which will treat a taxonomic group, or a broad subject area. The stated purpose is to introduce both young and established biologists to the methods available to tackle particular problems. Given the growing importance of conservation, especially in the developing world, such a series is welcome and timely, and potentially influential.

The emphasis in this book is on practical application in the field. In 14 contributed chapters it covers methods for surveying bird diversity and numbers, studying breeding, foraging, movement and migration, measuring live birds, studying dead/dying

birds, estimating survival, assessing and managing habitats, and harvesting sustainably. The book will be very useful for neophytes and those without access to experienced mentors, but veteran researchers are less likely to reach for it, as the tremendous range requires that individual topics are not treated with any depth. Consequently there remains plenty of room for advanced contributions on the role in conservation of (to name a few examples current in conservation projects I am involved with) disease, sample design, molecular technologies, and legal and ethical issues. Passages treating the latter, for example, are scattered through several chapters, whereas their complexity and importance make an in-depth coherent treatment desirable. Perhaps future volumes will do just that, helping to make this series a must for any group undertaking conservation work.

The authors are donating 200 copies of the book to ornithologists and libraries outside Western Europe, North America, Australia, New Zealand and Japan who would otherwise be unable to obtain a copy. Suggestions for recipients can be made at the Gratis books website http://www.nhbs.com/gratis-books. The authors deserve kudos for aiming to get this book to where it will do most good. The roles of Oxford University Press (organization), the British Ecological Society (postage) and the nhbs.com bookstore (distribution) in helping to do so ought also to be recognized. I look forward to more in this series.

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Cartoon by Damon Orsetti

***Editor's Note** – When I received the following book, I claimed 'Editor's prerogative' and grabbed it to review myself. The original intent was to follow our typical format, but the death of one author, John Maynard Smith, during the interval between Newsletters caused me to reconsider my approach to this particular review. Although I never had the opportunity to meet John Maynard Smith, his writings influenced my thinking profoundly during my PhD and postdoctoral work on sexual selection and signaling. Throughout the course of his career, John's work has inspired generations of behavioral ecologists to both think critically about and discuss theoretic ideas. Jack Bradbury's address on mentoring at the ISBE 2004 Congress (partially reproduced here in the Message from the President on pages 3-4), discussed John's love of discussing ideas and his passion for debate, so I thought it a fitting tribute to emulate this in reviewing his last work. At the ISBE conference, I approached Andy Horn to co-author the review with me, but to take a slightly different approach to the process. In August, Andy and I began an email discussion on the book chapter-by-chapter, taking turns to summarize Maynard Smith & Harper's ideas, and then comment on their arguments. This resulted in a back-and-forth discussion of ideas and (sometimes heated) debate that, when all emails were coalesced into a single document, was 14 pages single-spaced in length. The following is a synthesis of this discussion (allowing slightly greater space than normally associated with our reviews). Based on Jack's description, John would have preferred the discussion hold nothing back, so we highlighted both things that we thought were advances as well as difficulties we had with particular ideas. It is our hope that the result is something John would have liked.*

Ken Otter, ISBE Newsletter Editor

Animal Signals

John Maynard Smith & David Harper, Oxford University Press, 2003. 166 Pp.
ISBN 0-19-852684 (hardcover), ISBN 0-19-852685 (paperback)

The literature on animal communication is fraught with terminology, yielding confusion and, ironically, miscommunication when we describe biological signals and their evolution. In their new book, Maynard Smith & Harper attempt to disentangle the key terminological distinctions. They have largely succeeded, creating a clearer future for research on animal communication. This book is essential reading for anyone studying animal signals.

The first chapter, "What is a Signal", starts the clarification with the distinction between signals and cues. A cue is any feature of the animate or inanimate world that can be used by an animal to gain information that guides future action. This information allows assessment of another individual's state, but need not be information that individual would willingly transmit – an expression of fear or uncertainty in a dispute, for example. A signal is an act or structure that has specifically evolved to transmit information that affects the subsequent behavior of the receiver, in a way that benefits the signaler - in other words, the information is actively conveyed. Signals are further subdivided, largely based on how their reliability is maintained, and summarized in an extremely useful table that provides a synopsis of the various terms used in the book. The chapter's focus on reliable signals sets up a major theme of the book, which could easily be re-titled "Reliability in Animal Signals." One of the authors' main goals is to show that costly signaling is only one of several roads to reliability.

They take particular pains to distinguish between index and handicap signals. Chapter 2 sets up this distinction with a history of the famous debate in the 1970's and 80's on Zahavi's handicap principle, in which Maynard Smith himself was a key player. The opposition to Zahavi's idea is nicely analysed, explaining, with admirable candor, fallacies in Maynard Smith's own objections, and his sudden revelation, upon reading Grafen's 1990 game theory models, that Zahavi's idea might actually work. The rest of the chapter uses the Philip Sydney game to explore signal reliability further, illustrated with the scenario of a chick signaling levels of hunger to a feeding parent. Through various iterations of the model, the authors conclude that begging can be evolutionarily stable if the signals are costly and honestly reflect need.

Their explanation is beautifully clear, but (and we two reviewers did not entirely agree on this point) this

model and its scenario seem a questionable choice for explaining how signal reliability might arise. Since signaler and receiver are related, both signaler and receiver place the possible outcomes of the interactions in the same rank order, and thus don't conflict as much as in the scenarios that the handicap principle primarily addressed. This makes the key role of cost harder to see. Granted, r is allowed to vary in the model, so the scenarios are linked, but this link could have been spelled out better. Particularly so since it is the difference in how interactants rank the possible outcomes of an interaction that leads to the authors' key distinction between indices and handicaps. These two types of reliable signals are distinguished in detail, with examples, in chapters 3 and 4. Apart from chapter 3's brief treatment of the case in which the interests of senders and receivers coincide, other sorts of reliable signal are deferred to later chapters.

Indices are signals that are honest because their expression is physiologically constrained: low frequency calls that can only come from large bodies, for example. These signals are reliable because they can not be faked, even though they may be cheap to produce. Handicaps, on the other hand, are honest because their expression is costly and high quality individuals suffer a lower cost for production than low quality individuals. The chapters follow a number of examples in an attempt to distinguish between signals in nature that would be classified as indices, both morphological (eyestalks in stalked-eyed flies) and behavioral (dancing ability in *Drosophila*). Chapter 4 ends with a discussion of 'problem cases' which are difficult to categorize.

Both of us thought that distinguishing these two types of signals was a worthy quest, but this is where our discussion began in earnest. Maynard Smith and Harper suggest that exaggerators, especially traits that enhance the apparent size of structures, are often associated with indices. It seems ironic, though, to define something as an index, and therefore un-fakeable, when it is associated with an enhancer that misrepresents the true size of the structure. Even if, as the authors suggest, the exaggerators predate the index, becoming indices themselves once they escalate to being universally adopted by the whole population, one is left to wondering how to classify the signal if a new exaggerator arises. Further, some of the problems with distinguishing indices and handicaps in practice, well illustrated at the end of the chapter, could arguably apply to the examples used to distinguish them at the outset. The distinction really falters when Maynard Smith and Harper suggest that *"the classification of a signal as an index or handicap should depend on the nature of the signal itself, and on whether its reliability is maintained by physical constraints or by costs. But we should also remember that if only one aspect of some quality of interest is signaled, that can lead to an alteration in the relative investment in different aspects of the phenotype"(p. 61)*. But can such a signal truly be said to be non-costly? Presumably the ability to perform such reallocation may differ among individuals that differ in quality, which is part of the definition used to distinguish handicaps from indices. In short, the idea of making a practical distinction between these two is excellent, but applying it in practice requires that we understand all the costs associated with allocating resources to develop one trait at the potential expense of others.

Chapter 5 focuses on the form of signals, which the book had discussed earlier only in the context of indices. A fairly standard brief account of ritualization is followed by two accounts of the function of these changes: efficacy and manipulation. Most of the chapter lingers on the latter type of explanation, discussing non-equilibrium models (including sources of novelty, such as peak shift), sensory exploitation, and mimicry and cheating. The material on non-equilibrium models is a bit scant (only citing one model and one comparative study), and could have been more detailed to distinguish this issue from those surrounding reliable signaling discussed earlier. Mimicry and cheating is particularly short-changed (< 3 pages), especially since many have seen it as the engine of evolutionary changes (whether genetic or cultural) in signals. This may stem from Maynard Smith and Harper's focus on disentangling conceptual issues related to reliability, rather than on explaining the variety of signals found in nature.

Chapter 6 follows on from the Dawkins and Krebs arms-race model of signal evolution, strongly endorsed in chapter 5, to turn from indices and handicaps to a third factor that may influence signaling during contests: mutual interest in settling disputes without costly escalation. Conventional signals, plumage badges and need for resources (termed, confusingly given earlier discussions of chick begging, "signals of need") can evolve to avoid escalation in dispute resolution. This chapter provided a gem for both reviewers, in how the authors use the war of attrition model to illustrate what happens when the most

innocuous assumptions of most contest signaling models (discrepancy in need and willingness to fight) are lifted. Just as the null conditions of the Hardy-Weinberg model makes a world without random mating seem highly improbable, the null conditions of the war of attrition make a world without signaling seem absurd.

The final chapter of the book focuses on signaling in primates with what is, by the authors' own admission, something of a grab-bag of topics that mostly relate to more sophisticated processes in communication. They start with a recap of the familiar story of calling in vervet monkeys, followed by a brief account of the ontogeny of signaling, again focusing on the vervet story. They then turn to the main issues such work raises, namely external reference and intentionality. The latter topic leads fairly smoothly to that of the next section, the role of reputation and punishment in maintaining the honesty of signals. They then suggest emotional commitment as a possible mechanism for holding together cooperative interactions, tacking on a discussion of group displays whose function may be along these lines rather than to communicate information per se. They close the book with a brief review of recent ideas on the evolution of human language.

This final chapter was a favorite for both of us, full of interesting ideas. Not surprisingly, given its topics, the discussion is fairly jumbled and does not adhere to the book's central themes as well as other chapters. A more explicit statement of the chapter's purpose and relation to the other chapters would have helped. Nonetheless, the chapter's references make still more of the useful links, peppered throughout the book, that stretch beyond the reading lists of most of us. Silk's models of reputation, sketched here, is one of the most important of these links, and, like the others, left us wishing for a fuller treatment. That wish will send us to the original references, though, so this sketchiness may be an asset, after all. This chapter also had our favorite example in the book. To illustrate that syntax in language can develop without being reinforced, Maynard Smith and Harper suggested that a child might be reinforced if he/she said "I don't want no more milk", but reprimanded for saying "I don't want any fucking milk", despite the latter being more grammatically correct. This final chapter evoked the most back and forth debate between us, as well as a number of points that we felt would have benefited by being explored in greater depth. The ideas could easily have been expanded into two chapters, which would have made the treatment feel more complete and less rushed.

Overall, the book is well laid out, and its emphasis on clear definition and logic is without parallel in books on animal communication. Not surprisingly given their past work, the authors use modeling as their primary mode of reasoning, and focus on concepts rather than examples. While this is a strength that sets this book apart from other texts, it can also be a short-handed approach that proves dangerous. Many avenues of research that provide useful examples are neglected, often with the claim that little empirical work exists. Discussion of the work in the last decade on interactive playback (both auditory and visual) is completely missing from the discussion of signaling in protracted contests in chapter 6. Recent literature on network communication, which shows similar transitive inference capabilities in a variety of taxa, from fish to birds, discussed only in reference to primates in chapter 7. Extensive literature on functional reference, signal development, and evolution of language discussed in chapter 7 is ignored.

Despite this, however, both of us found the book extremely interesting, not because we necessarily agreed with every argument put forward, but more for the wealth of ideas and discussion that it inspired. Often single passages resulted in protracted arguments back and forth on the true intentions of the authors, as we wrestled all the while with our own interpretations (not always shared by both reviewers!). This book forced both of us to think about specific issues that we might normally gloss over, often sparked more by what we thought the authors had left out of the discussion than by what they had included. In the end is this not the mark of significant works? This book appears to have achieved what John Maynard Smith loved – getting people to think by engaging them in clear debate. We think that this book marks a significant contribution by Maynard Smith and Harper, a keystone in the communication literature, and a fitting legacy for John as it will spark discussions long after his death.

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CONTRIBUTIONS TO THE ISBE NEWSLETTER

The ISBE Newsletter publishes Book, Conference and Workshop Reviews of interest to the *International Society for Behavioral Ecology*.

Book Reviews: Persons involved in the publishing of books who would like these to be considered for review in the Newsletter may contact the Editor and arrange for their publisher to forward a review copy to this office. Authors may submit a list of possible reviewers. Alternately, members who wish to review a particular text should contact the Editor.

Workshop/Conference Reviews: Workshop and/or Conference reviews should be prepared in one of the following two formats. ***Brief synopses*** (max 1000 words) may be submitted by either participants or conference organizers at the regular newsletter deadlines. These can include synopses of workshops that will be published in more detailed accounts (book or special journals), and should include information as to where the information will published. ***Longer reports*** (max 2500 words) will be considered from large workshops/conferences for which other publications are not stemming. The purpose of the latter format is to provide a venue to disseminate information and discussions that would otherwise not be available to non-conference participants. Anyone attending such a workshop and wishing to publish in the Newsletter should contact the Editor at least ***one month*** prior to submission deadlines. Reports should aim at a critical assessment of the conference, as well as a synthesis of the convergent ideas presented. A synopsis of future directions of research that were reached at the end of the conference should also be included. Anyone attending the workshops may submit reports, but preference will be given to submissions not authored by conference organizers. A single application for a workshop will be considered, so it may be appropriate to agree upon a reporter at the conference. Graduate students and postdocs are strongly encouraged to consider contributing to writing these reports.

Commentaries: Responses to commentary articles published in the newsletter or articles eliciting discussion on topics relevant to the society will be considered for publication. Authors of such articles should contact the Editor at least *one month* prior to regular submission deadlines to outline the content of the article. The Editor may request submission of the article earlier than regular deadline should outside reviewing be deemed necessary.

Cartoons: Cartoonists are encouraged to submit artwork , either in hardcopy, or as TIFF or high resolution (300 dpi) GIF files. All cartoons published in the newsletter will be credited to the illustrator, and will appear on the Newsletter's website (*web.unbc.ca/isbe/newsletter*).

Deadlines for submission to the spring/summer newsletter will be 15 March 2005.