

Table 1. Counts of waders observed on the Tanzanian coast. Figures give the total number observed, the density per km on low tide counts, and a 'guesstimate' of the total population on the Tanzanian coast.

	Number observed	birds per km (low tide counts)	total coast 'guesstimate'
Oystercatcher <i>Haematopus ostralegus</i>	140	-	-
Crab Plover <i>Dromas ardeola</i>	7,020	24.8	24,000-28,000
Ringed Plover <i>Charadrius hiaticula</i>	2,160	9.2	11,000-14,000
White-fronted Plover <i>Charadrius marginatus</i>	910	3.9	5,000-6,000
Greater/Lesser Sandplover <i>Charadrius leschenaultii/mongolus</i>	4,740	27.5	24,000-26,000
Grey Plover <i>Pluvialis squatarola</i>	4,390	16.3	17,000-21,000
Sanderling <i>Calidris alba</i>	1,290	5.9	8,500-9,500
Little Stint <i>C. minuta</i>	9,450	13.0	17,000-19,000
Curlew Sandpiper <i>C. ferruginea</i>	20,990	86.2	90,000-120,000
Bar-tailed Godwit <i>Limosa lapponica</i>	40	-	-
Whimbrel <i>Numenius phaeopus</i>	4,510	14.7	12,000-13,000
Curlew <i>Numenius arquata</i>	170	-	600-800
Greenshank <i>Tringa nebularia</i>	1,370	6.9	7,000-10,000
Terek Sandpiper <i>Xenus cinereus</i>	5,260	26.1	34,000-38,000
Common Sandpiper <i>Actitis hypoleucos</i>	420	0.4	2,000-4,000
Turnstone <i>Arenaria interpres</i>	1,190	5.9	7,000-9,000

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(This note is an expanded abstract of a presentation at the 8th International Feeding Ecology Symposium, Ribe, September 1989.)

WHERE THE WILD WADERS WANDER

Bruno Ens

A largely true, though highly selective, account of the 8th International Waterfowl Feeding Ecology Symposium, the workshop on Recent Advances in Understanding Knot Migrations and the Wader Study Group Conference in Ribe, Denmark, from 18-24 September 1989.



ABSTRACT

Too many participants. Too few women. Too much good food. Too much good weather. Too few head-banging discussions. Too good to have missed.

PART I: CHRONOLOGICAL ACCOUNT

When Theunis asked me to write an informal report on the 8th International Waterfowl Feeding Ecology Symposium, he quickly added that he did so because of my witty style of writing. Since this is not often said to me (in case you find yourself laughing to death - please tell John Goss-Custard not to censor my manuscripts anymore), I had no psychological defences prepared and proved an easy prey. Clearly, a major objective of this account is to make sure I will not be asked again.

Arriving in Ribe on Sunday 17 September we quickly realized that our self-imposed confinement would be in a very pretty little town indeed. It was clear that the organisers had gone out of their way to make everything run as smoothly as possible. We were handed a compilation of abstracts of papers and posters (very well exposed in a cozy sideroom) and a key to our very comfortable rooms. Apparently, some of the organizers cannot accept the fact

that the conference is really over, because I have just received a nice photograph of my fellow waderologists (including myself) and a very handy list of participants. Most notable, perhaps, was the excellent quality of the food. Some of our British friends arrived in a very poor body condition and this bonanza of food gave them a good possibility to regain body mass. Myrfyn Owen and David Hill actually didn't even make it to the conference, though rumour had it that one was still caught in a traffic jam and the other lost his passport. It turned out that the emaciated British arrivals all worked for the Nature Conservancy Council, which is threatened with being cut into three separate parts. Nature is not generally known to stop at regional boundaries, so Peter Evans made a passionate plea at the end of the conference that every participant sign a letter to the Thatcher government explaining what a rotten idea this is. Since he wants good ole Maggie to turn green instead of red he phrased the message in a slightly different way.

In all, only one minor complaint can be levelled at the organisers of the conference. They seemed surprised that many people actually wanted to visit the conference, so not everybody could be housed in the very comfortable youth hostel which served as a conference centre and not everybody could have a place in the main conference room. The latter

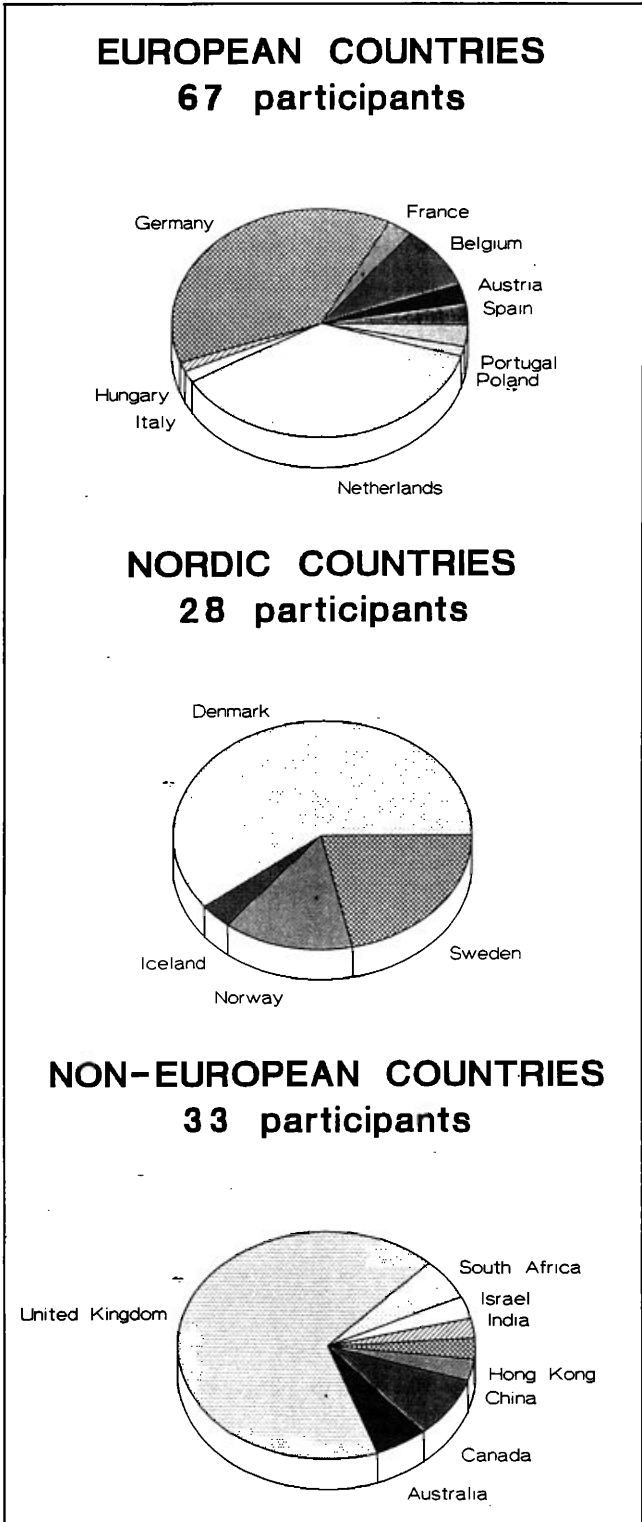


Figure 1. The countries of origin of participants in the Ribe meetings.

problem was solved by having a video installed in two neighbouring rooms. This allowed for a great many jokes about the guys next door, which in response would laugh, yell or groan at unpredictable moments in time.

The participants derived from a great many countries, including Australia, Canada, China, Hong Kong and Israel. Even two waderologists from South Africa managed to sneak in. We hope

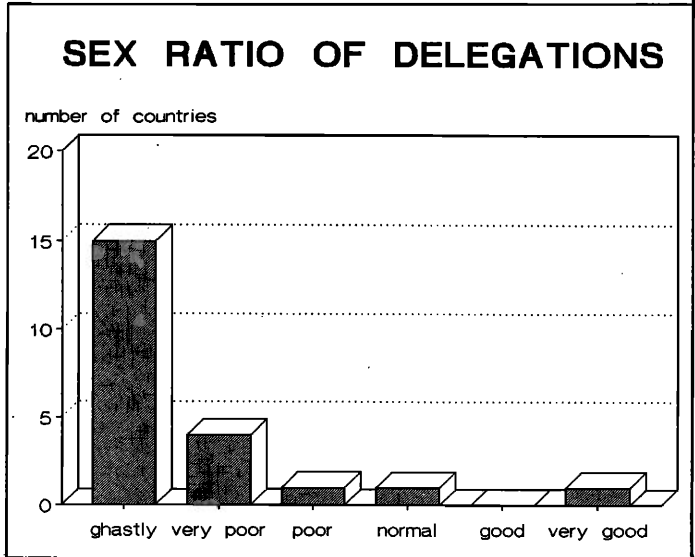


Figure 2. The sex ratio of participants from each country at the Ribe meetings.

with them, that the situation in their home country improves so quickly that next time they fly over Africa they are actually allowed to visit the stopover sites of the waders they study (while writing this report the Berlin Wall has come down, so who knows what happens next). As the conference was held in Scandinavia it came as no surprise that many participants derived from the Nordic countries. Among the European countries, Germany and the Netherlands competed for the largest number of participants. Among the non-European countries the United Kingdom stood out singly (Figure 1). When the frequency distribution of the sex ratios of the various delegations is plotted, it can be seen that they ranged from poor to very poor (Figure 2). Thanks to Jadwyga Gromadzka, Poland proved the lucky exception to the rule. Since sexists and feminists should rank sex ratios in a like manner, the improvement of these abominable ratios seems a clear common goal for the future.

On Monday September the 18th somebody opened the conference, but I forgot who did it (quite exciting to offend somebody without knowing who). The tone of the conference was then set by the first Chairman, Rudi Drent: he will never be known as a passionate writer of letters or an organized organizer, but he cannot be missed as a quick-witted conference joker. The first session dealt with carrying capacity of waterfowl habitats, which allowed Rudi to show off (guess my supervisor) with the many talks presented by his former or present-day students. Mennobart van Eerden easily won the competition for having his name associated with the largest number of talks. Maarten Loonen made a strong case that Wigeon need to drink a lot while feeding, which caused many participants to envy these creatures. Session II dealt with imitative and exploitative foraging tactics. Peter Ferns tried to convince us that it may be good for waders to have their food stolen from them. I think we should all be glad he is not our local Police officer. In session III, three speakers tried to shed some light on the problem of night-time feeding of waterfowl. At the end of the day, it turned out that the only proposal for a general discussion was on night-time feeding. The Chairman then suggested that the people wishing to attend this discussion should move to a side room where a closing of the

curtains would allow for a low level of illumination appropriate to the subject. After having reached our digestive bottle-neck Jan van de Kam showed us some of the many beautiful slides he has taken during the last couple of years. The audience had to give up sighing at every new picture, because it was too exhausting. Even then Jan van de Kam managed to speak so softly that he could not be heard talking by the major part of the audience. Luckily therefore, few will have heard that he preferred a camel over the sunburnt body of the author as background to show the uninitiated that the pictures were taken in Africa. From the discussion that followed the slide-show, we learned that any would-be wader-photographer who leaves the mudflat before the water has reached his nostrils has no chance of becoming a second Jan van de Kam.

Tuesday 19th September (session IV) dealt with habitat use and breeding performance. Peter Evans told us to measure the nearly unmeasurable, which he could be reasonably sure had not been measured yet. Albert Beintema concluded that God made a mistake in designing Lapwings, and that since then the Frisians have helped him. (I auto-censored my joke on why God designed Frisians.)

Throughout the conference a very tight time schedule of 15 minute talks followed by 5 min discussions was quite strictly adhered to. A local watch-watcher would sit next to the Chairman to hold a sign in front of the speaker to tell him only 3 minutes were left. We were promised that any speaker reaching the 0 minute limit would be kicked, but no such thing happened. The most notable case of a speaker running into time problems was Kevin Briggs talking on agrarian feeding of inland breeding Oystercatchers. He had prepared about 10 times too many sheets with about 100 times too many numbers. When asked he told us that in a try-out at home he had encountered no problems. Perhaps anybody living 300 miles away from his weekend study site becomes a bit speedy. In session V on feeding in waterbirds, Lu Jianjian from China would also have run into time problems if the Chairman had not allowed him to exceed the time limit. It seemed a wise decision and left us wandering about the implications of our thus acquired knowledge on the different types of fatty acids which can be found in waders.

During dinner we were enchanted by the songs (interspersed with wise-cracks) of the old Watchman of Ribe. He led us to some old building (my mother gave up on teaching me culture long ago) where he translated the speech of the Mayor of Ribe. That is to say we, as well as the Mayor presumed that that was what the old Watchman was doing. We were glad to hear that the Mayor was glad that we were where we were. We were told that Ribe is the only city to maintain the tradition of a Watchman, which is a pity because he was able to draw a lot of laughs in a very short period. It was a very pleasant evening, especially when we were allowed to drink the beer and soft drinks so generously offered to us by the people of Ribe. Regrettably many of us missed the excursion led by the old Watchman through Ribe. Back 'home' the small rooms were used for all sorts of gatherings. Agreement was reached on an integrated study of the ecology of the European Greylag Goose. In another room John Goss-Custard was assured that THE BOOK about THE BIRD should be written and that HE should be the editor. He promised the writers of the chapters immortal fame in return for the royalties. In all, an astonishing number of

these little meetings took place and it is possible that Ribe will be remembered most as the birthplace of an unsurpassed number of new wader expeditions.

Next day the locals did a very good job in organising the weather for the excursion. One bus headed for Blavandshuk and Tipperne. Two buses headed for the Wadden Sea, stopping first at the Romo dam to see the waders leave the high tide roost. Both excursions were too good to be true, so I will not waste more words on them. After dinner Hugh Boyd commemorated the death of Sir Peter Scott, recounting as one of their first common memories that they were forced to eat two (2!!) Danish dinners in one night, not being told of the second one while eating the first. Then a Scottish Dane, or a Danish Scot or maybe just a Scot on holiday in Denmark did a one-man show of songs on nuclear warfare, whaling, the parent-offspring conflict and related topics. It lasted much too short and it was the first as well as the last time I heard all attendants of the conference try to sing together.

Thus began the last day of the conference on Thursday the 21st of September. Session VI dealt with habitat effects on population regulation in waterfowl. It was chaired by John Goss-Custard, who does get older after all, judging from the glasses he occasionally put on his nose. At long last we were shown a slide of Lemmings by Ron Summers (spring-staging scorer number 1). It was decidedly a bad Lemming year since the topic did not catch on. Session VII was on habitat loss. Rob Lambeck tried to show everybody had been wrong about the importance of food in determining bird numbers, so it was no wonder nearly the whole conference jumped up to lambast him in the general discussion. Rudi reminded us that a comparable discussion had been going on in the fisheries world about the stock-recruitment curve in Herring. This issue was resolved when stock and recruitment fell to very low levels and overfishing was a fact. Reflecting on this lively discussion, it seemed to me that the organized review papers might have profited from appointed anti-reviewers who should try to show why the review paper was completely wrong, ill-conceived and an absolute waste of time. In the final section (VIII), four speakers discussed the effects of disturbance. Then the conference was closed (to make sure nobody would miss the point, it was closed three times by three different speakers, including Mike Moser who seemed to have come over for the sole purpose of conference-closing).

The same evening the workshop which tried to make sense of Knot migrations began. According to the program Nick Davidson introduced Knots and Allan Baker. The latter provided us with molecular perspectives on population differentiation and speciation in calidridine Sandpipers, with special reference to Knots. It met with so much enthusiasm as well as misunderstanding by Darwinian duffers like me, that he was asked to give the talk two more times. *Calidris canutus glasnosti* was proposed as a name for the Knots breeding on Wrangel island. We were led to believe that the more Knots are studied the less clear it is where they actually breed: few politicians could improve on these arguments to obtain money to travel to the arctic. One conclusion did not change: wherever Knots go they have a crazy habit of flying very long distances.

Well fed, but intellectually exhausted, the die-hards then went on to attend the WSG-meeting starting on the 23rd September.

Judging from the many new faces and a fair constancy of numbers, a substantial amount of emigration and immigration appeared to have taken place. The first day was spent on a workshop on waders breeding in wet meadows. Several studies showed that meadow birds can be managed successfully. To keep us from dinner, Mike Pienkowski and his cronies (Rhys Green pleaded guilty) had invented a list of recommendations, to protect waders breeding on wet meadows, which he hoped would magically spread into beaurocracy. (I suggest it is made into a computer virus testing the knowledge on meadow-bird protection. One wrong answer should be enough to have the contents of the hard disk erased while the PC starts beeping like a Godwit.) Finally we got our dinner and then Peter Prokosch and Herman Hotker captivated the audience with slides of their expedition to the Taymyr Peninsula. We almost had the feeling of setting foot ourselves in this most mysterious part of Siberia, taking one hurdle after another. It proved to be a non-breeding year for Brent Geese, of which no less than a thousand were caught and colour-marked. No Lemmings were seen alive, but it was a very late spring too and Brent Geese probably had not even attempted to breed, so a new expedition is needed to silence the spring-staging scorners or the Lemming-laughers once and for all (Lemming-laughing is most common in capitalist Canada, where they haven't managed to synchronise the Lemming cycles properly in comparison to their communist comrades).

Luckily, we were allowed an extra hour sleep in preparation for the final day. Regrettably, many of us forgot to inform our watches about this. The final day was devoted to miscellaneous waders wintering and migrating all over the world.

PART II: SCIENTIFIC HIGHLIGHTS

Sipping at a joint cola with Allan Baker from Canada, Brett Lane from Australia and paid for by Cor Smit from Texel in a German restaurant, it occurred to me that to maximize the number of offended people I should try to evaluate the conference(s) not only from a social point of view, but from a scientific point of view as well. I will not try to mention every talk or every issue, but attempt a selective review what seemed to me to be the major topics, or should have been.

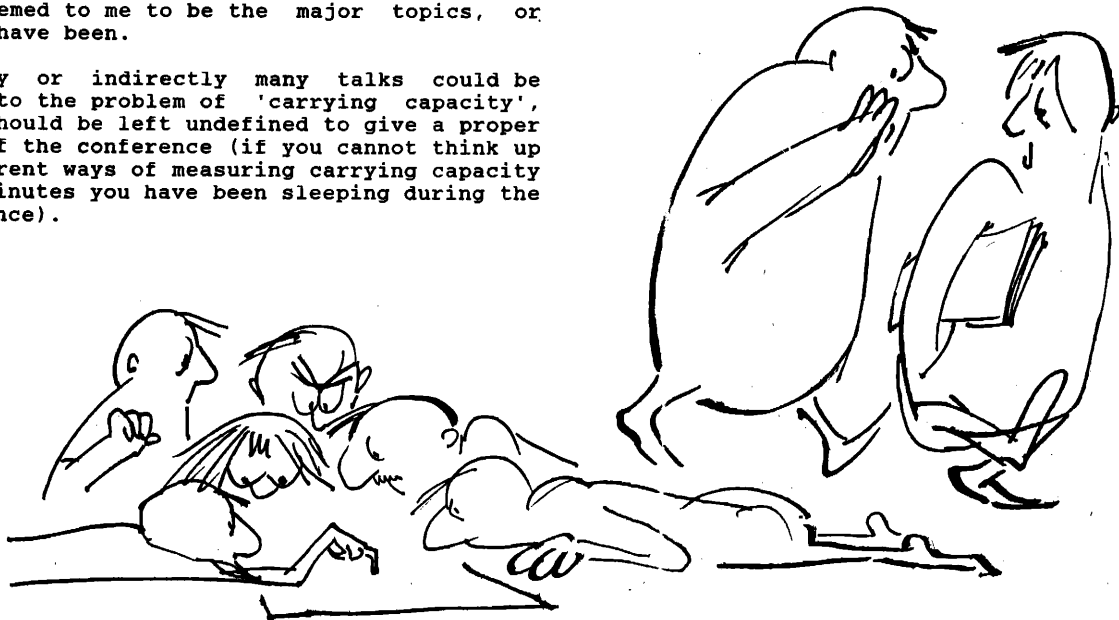
Directly or indirectly many talks could be linked to the problem of 'carrying capacity', which should be left undefined to give a proper feel of the conference (if you cannot think up 5 different ways of measuring carrying capacity in 10 minutes you have been sleeping during the conference).

Winter food supplies

Many geese and duck studies reported on detailed measurements on the feeding behaviour and the food stock and attempted to quantify the amount of food that the animals can harvest profitably. For several herbivorous species, Mennobart van Eerden provided evidence for a lower limit to the density of the food, below which the food could no longer be profitably harvested. Peter Frenzel & Kark-Heinz Kolb on the other hand reported for diving ducks that they locally depleted the food supply completely. Perhaps we should not be too surprised to find sporadic mass starvations in such a system, though Werner Suter claimed it to be unusual in his title. The major challenge apparently consists of devising more sophisticated methods to study both the feeding behaviour (including energetics) and the available food stock both in the field and laboratory. When food not merely serves to decorate the landscape, but can perform behaviour, food availability can be equated to the performance of risky activities by the food. Paul Martin and D. Baird suggested that the only mudprawn prey that are available to waders are incited by their parasites to crawl to the surface. Due to the absence of the leader in this field (Leo Zwarts - who enjoys hiding his message in overly complicated graphs) we were offered no examples of the more general case that prey perform risky behaviour to acquire food themselves.

Surprisingly, only two studies dealt specifically with the direct negative effects of feeding together through interference - a hot topic some years ago. The studies on kleptoparasitism by Peter Ferns and Juan Amat did not consider ecological implications, but attempted to provide adaptive explanations for behaviour of the kleptoparasite and their victim.

Last but not least, the theoretical problem on what scale (in space and time) to study the phenomena only emerged in a general discussion on the importance of food in determining numbers.



Disturbance

Several studies described the behavioural response of waders and waterfowl (mainly Wigeon - apparently a very disturbed species) to disturbance. Cor Smit presented preliminary results on marked Oystercatchers suffering a decline in intake rate upon being chased from their home range. Jesper Madsen and Karsten Laursen convinced us that it is possible to measure the amount of harvestable food not harvested due to disturbance. In a discussion Hans Meltotte claimed that a total ban on hunting would solve all problems at once: it would be a nice experiment in applied ecology.

Migration: problems of scale

Talks on migration highlighted the problem of scale in time and space already touched upon. No answers were provided. Knot-spotting appeared to be a globally orientated activity. The logistic problems of coming to grips with the migratory schedule of one of the most maniacal migratory animals to be found, are formidable and the subject can only be recommended to massochists and Frisians with boundless energy. The bulk of the Knot workshop consisted of describing the patterns of Knot migration. In my view (approved of by professional Knot-spotter Theunis Piersma) it functioned as a warming-up for the real question that has yet to be answered: why do Knots migrate the way they do? The general impression of the workshop was one of enthusiastic pre-migratory excitedness.

Breeding season

The study of meadow-birds (waders that were preadapted by God to prefer to breed in man-managed meadows and pastures) show that a lot of knowledge has accumulated on the feeding ecology and habitat preferences of the various species. That meadow-birds can be managed/cultured/cultivated was convincingly demonstrated by Albert Beintema, Rhys Green, Ole Thorup and others.

Predation on eggs and chicks popped back on the scene as a major determinant of breeding success. Paul Jonsson provided evidence that a sudden decline in population of Foxes in Sweden may stop the decline of Dunlin population.

Kevin Briggs was the only one to present direct observations of food intake in a meadow bird indicating how difficult it is to establish the link between food supply (more often measured) and food consumption (sometimes estimated from energetic needs) in a habitat where visibility is obscured by the unfortunate occurrence of grass and which is inhabited by a bewildering number of potential prey animals as we were told by Johan Thissen.

Several studies reported a decline in reproductive success in the course of the season, a wide-spread phenomenon in single-brooded species. This may be due to a decline in the amount of effort the parents want to invest in raising the chicks, which in turn might be due to a decline in the survival chances of chicks fledged late. I hope social security is secure enough to allow me to test this with the ringing record of the Oystercatchers.

Just as one might ask why breed late, one might ask why occupy a poor territory. I tried to convince the audience that for Oystercatchers measuring the number of non-breeding years

associated with different types of territories holds the key to karma.

Linking breeding and wintering: the real thing

In migratory animals local protection of breeding or wintering sites must be part of a global strategy of protecting the populations. Only two talks dealt with population dynamics. Ron Summers and Les Underhill showed why the subject has gone out of fashion: they reanalysed 32 years of population data on Brent Geese in an attempt to prove previous analysts wrong. What hope is left when 32 years of data are not enough? Should we therefore regard the other population-dynamicist, John Goss-Custard, as a living fossil, a sort of lone straggler still struggling with problems from the past? Since the problems of the past were not solved, the answer is a definite no. The Oystercatcher is probably the best studied wader in the world and a prime candidate to build models on that link winter and summer. The new perspective though, is that John proposed to derive the density dependence in winter mortality from a detailed study of the process of food competition - a sort of short-cut long-shot: a short-cut, because fewer years are required to obtain the negative-density dependent relationship, a long-shot, because if successful the negative density dependent relationship and the underlying process are obtained at the same time.

PART III: THE END

If only half of all plans conceived or presented at the conference prove successful, we have a lot to look forward to at the next conference. As a sort of homework I suggest everyone tries to have their replies to the following propositions ready at the next conference.

1. Carrying capacity is a non-concept that creates more clouds than clearings.
2. Carrying capacity can be meaningfully defined only with respect to a particular area.
3. A definition of carrying capacity should be aware of the links between areas and the link of the density-dependent processes in winter and summer.
4. Carrying capacity of an estuary can be inferred from changes in usage with changes in overall population size.

ACKNOWLEDGEMENTS

I want to thank Rhys Green for inventing half the jokes.

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