# Évaluation de la vulnérabilité des oiseaux nicheurs du Québec au changement climatique

## Recherche bibliographique

Présenté au

**Service canadien de la faune, Région du Québec**
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Par

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# AVANT-PROPOS

Ce rapport fait état de la recherche bibliographique effectuée dans le cadre du mandat visant **l'évaluation de la vulnérabilité des oiseaux nicheurs du Québec au changement climatique.** Il présente la littérature répertoriée dans les bases de données Current Contents, Agricola et Biological Abstracts, lesquelles s'avéraient les plus appropriées dans le cadre de cette étude. La recherche a porté sur la période 1979-1995, ce qui a permis d'identifier des articles scientifiques récents sur la problématique du changement climatique et des écosystèmes. Les bases BADADUQ de l'Université du Québec à Montréal et MUSE de l'Université McGill ont été consultées pour les monographies. La recherche s'est effectuée principalement à partir des mots-clés suivants: bird, insect, wildlife, climate, climate change, cold, heat, rainfall, temperature, weather, distribution.

La liste 1 présente par ordre alphabétique les articles et monographies sélectionnés à partir des bases de données Current Contents, Agricola, BADADUQ et MUSE. Les documents figurant sur cette liste sont disponibles chez G.R.E.B.E. inc.

La liste 2 illustre les résultats de la recherche effectuée dans la base de données Biological Abstracts. Il s'agit d'une liste de référence à partir de laquelle les articles les plus pertinents pour interpréter les résultats de l'étude en cours seront consultés. Étant donné que cette liste est très longue, des sections ont été créées afin de la segmenter. Les mots-clés utilisés pour obtenir les différents titres de chaque section sont présentés au début de chacune d'elle. Ces sections sont numérotés de 1 à 9. Six rubriques décrivent les articles figurant sur la liste 2:

TI (titre),
Au (auteur),
SO (source),
PY (année de publication),
LA (langue de l'article),
AB (résumé).

Il est à noter que certains articles scientifiques peuvent être répertoriés dans les deux listes.

Liste 1

Documents disponibles chez G.R.E.B.E. inc.

## LISTE 1


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Liste 2

Liste de référence

Section 1

Mots-clés: distribution and bird and cold

# LISTE 2

**Section 1**

Mots clés: distribution and bird and cold

Enregistrement 1 de 26 - BA on CD January - June 1992
TI: Habitat structure predicts bird diversity distribution in Iberian forests better than climate.
AU: TELLERIA-J-L; SANTOS-T; SANCHEZ-A; GALARZA-A
SO: BIRD STUDY 39(1): 63-68
PY: 1992
LA: English
AB:This paper explores the role of climate and habitat structure as predictors of the richness of birds breeding in the forests of the Iberian Peninsula. Mean richness of passerines was counted in 48 large woodlands distributed along a 850 km belt crossing the Iberian Peninsula. It was correlated with mean scores of climatic (temperatures, precipitation, evapotranspiration) and physiognomic (trunk density, tree age structure and trunk diversity) variables. Simple correlation analysis showed the importance of both climatic (temperature and evapotranspiration, positively correlated) and structural (trunk density, negatively correlated) variables in predicting bird diversity. The importance of climate vanished, however, when the problem of interaction between variables was solved by means of partial correlation: trunk density became the only variable correlated with passerine richness. These results seem to show the prevalence of forest structure as a predictor of bird diversity along the studied gradient.

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Enregistrement 2 de 26 - BA on CD January - June 1992
TI: Seasonal variation in weight, body measurements and condition of free-living teal.
AU: FOX-A-D; KING-R; WATKIN-J
SO: BIRD STUDY 39(1): 53-62
PY: 1992
LA: English
AB: The weights and measurements of almost 7000 Teal captured in Abberton Reservoir, Essex (England, UK) during 1969-85 were analyzed. Teal showed significant differences between the first year and adult birds and between males and females in tarsus and wing length, but significant differences only between the sexes in skull length. Weights were corrected for body size using wing length to give a condition index. The index of condition increased in all age and sex classes from September to reach maximum values late in the year, before falling to lowest levels in February. Female birds show more marked responses by the reduction in January condition index to hard weather than males and, indeed, the proportion of females caught at Abberton significantly declines with increasing severity of weather conditions. The significance of these sex related responses are discussed in the light of known features of the ecology of the species.

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Enregistrement 3 de 26 - BA on CD January - June 1992
TI: Breeding success and laying date of Nuthatches Sitta europaea in relation to habitat, weather and breeding density.
AU: SCHMIDT-K-H; MAERZ-M; MATTHYSEN-E
SO: BIRD STUDY 39(1): 23-30
PY: 1992
LA: English
AB: The paper describes an analysis of 409 breeding records of Nuthatches Sitta europaea from nestboxes in 13 study areas in West Germany over 16 years. We found one true second brood and eight replacement broods. Mean date of first egg was 19 April, mean clutch size 6.49 eggs and mean number of fledglings per clutch 5.14. Seventy-six percent of all clutches produced fledglings. We found habitat effects on laying date and clutch size but not number of fledglings, and the patterns were not consistent with literature data on habitat-related breeding success and habitat selection. Clutch size decreased with laying date but only in early clutches. In heterogeneous habitats older birds bred earlier than young birds, which suggests a relationship with territory quality. All aspects of breeding success and laying date varied between years. Breeding success was higher if rainfall in March was high and population density low. The latter relationship may be indicative of density-related variation in territory quality.

Enregistrement 4 de 26 - BA on CD January - June 1992
TI: Development of thermoregulation in a precocial aquatic bird, the American coot (Fulica americana).
AU: SUTTER-G-C; MACARTHUR-R-A
SO: COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY A COMPARATIVE PHYSIOLOGY 101(3): 533-543
PY: 1992
LA: English
AB: Developmental changes in metabolic rate and thermoregulatory ability were documented in the American coot (Fulica americana). Prenatal metabolic rate rose exponentially with age, reaching a plateau of 0.083 W by 3-4 days prehatch. Neonates could elevate resting metabolic rate by 40% in cold air. This capacity increased to 140% by 1-5 days posthatch. By 8-15 days of age, hatchlings were homeothermic at air and water temperatures of 25-35 degree C. In air, the lower critical temperature declined with age, reaching a minimum value of 19-21 degree C at the fledgling state. Achievement of homeothermy in this species appeared to depend on the attainment of adequate insulation, thermal inertia and thermogenic ability.

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Enregistrement 5 de 26 - BA on CD January - June 1992
TI: The effects of temperature on the oxygen consumption, heart rate and deep body temperature during diving in the tufted duck Aythya fuligula.
AU: BEVAN-R-M; BUTLER-P-J
SO: JOURNAL OF EXPERIMENTAL BIOLOGY 163(0): 139-151
PY: 1992
LA: English
AB: Six tufted ducks were trained to dive for food at summer temperatures (air, 26 degree C, water, 23 degree C) and at winter temperatures (air, 5.8 degree C, water 7.4 degree C). The mean resting oxygen consumption ( ovrhdot VO-2) at winter temperatures ( T-win) was 90% higher than that at summer temperatures (T-sum), but deep body temperatures (T-b) were not significantly different. Diving behaviour and mean oxygen consumption for dives of mean duration were similar at T-win and at T-sum, although the mean oxygen consumption for surface intervals of mean duration was 50% greater at T-win and T-b was significantly lower (1 degree C) at the end of a series of dives in winter than it was in summer. There appears to be an energy saving of 67J per dive during winter conditions and this may, at least partially, be the result of the metabolic heat produced by the active muscles being used to maintain body temperature. While at rest under winter conditions, this would be achieved by shivering thermogenesis. Thus, the energetic costs of foraging in tufted ducks in winter are not as great as might be expected from the almost doubling of metabolic rate in resting birds.

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Enregistrement 6 de 26 - BA on CD January - June 1992
TI: The effect of dehydration on brain temperature regulation in Japanese quail (Coturnix coturnix japonica).
AU: ITSAKI-GLUCKLICH-S; ARAD-Z
SO: COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY A COMPARATIVE PHYSIOLOGY 101(3): 583-588
PY: 1992
LA: English
AB: The effect of dehydration and heat exposure on body and brain temperature was studied in quail exposed to increasing ambient temperatures within the range of 25-40 degree C. The body-to-brain temperature difference was not affected by increasing ambient temperature or hydration state. A mean body-to-brain temperature difference of 0.96+- 0.64 degree C and 0.85 +- 0.65 degree C was found in normally hydrated and dehydrated quail, respectively. The slope of the relation between brain temperature to body temperature (0.77) was significantly lower than 1.0 (P lt 0.001), when the results of the two hydration states were pooled. This indicates increased brain cooling with increased body temperature. Body and brain temperatures of water-deprived quail were significantly higher (P lt 0.05) than those of hydrated birds during exposure to ambient temperatures of 35 and 40 degree C. Respiration frequency increased during exposure to 35 (four birds) and 40 degree C (six birds) in the normally hydrated quail, while in the dehydrated quail, respiration frequency increased only in three birds during exposure to 35 degree C, and four birds during exposure to 40 degree C, the frequencies were lower during dehydration. Plasma osmolality and chloride concentration were significantly higher in the dehydrated quail (P lt 0.05). The present findings show that dehydration and heat exposure resulted in a relative hyperthermy, and thus implying a reduced evaporative cooling. The quail appears to be well adapted to dehydrating conditions.

Enregistrement 7 de 26 - BA on CD January - June 1992
TI: Temperature regulation in the incubation mounds of the Australian brush-turkey.
AU: SEYMOUR-R-S; BRADFORD-D-F
SO: CONDOR 94(1): 134-150
PY: 1992
LA: English
AB: The Australian Brush-turkey, Alectura lathami, constructs incubation mounds of decomposing forest litter in which many large eggs are incubated by microbial heat generation. On Kangaroo Island (South Australia), the average mound is about 12.7 m-3 and weighs about 6,800 kg. It maintains an incubation temperature of 33 degree C in an average ambient air temperature of 18 degree C. When eggs are in the mound, the rate of heat production is estimated to be about 100 Watts, a value more than 20 times the heat production of the resting adult. Thus, the mound can incubate many more eggs than would be possible in a normal nest. Core temperature is stable due to mound size and biophysical homeothermy. Mounds tend to reach a stable "equilibrium temperature" at which the rate of microbial heat production equals the rate of heat loss to the environment. The bird adjusts equilibrium temperature by adding or removing litter as required. A numerical computer model, incorporating experimental data on mound size, ambient temperature, and the mound material's rate of heat production, water content, dry density, and thermal conductivity, predicts that as little as 1 cm of litter added to the mound will raise core temperature about 1.5 degree C. Experimental manipulation of artificial and natural mounds uphold the model and indicate that functional mounds required (1) a critical mass of fresh litter (ca. 3,000 kg), (2) sufficient water content ( gt 0.2 ml/g dry material), and (3) occasional mixing of the litter. Once constructed and adjusted, natural mounds require little attention, and larger ones can stay warm for several weeks without the bird. The mount characteristics appear to minimize the work required for maintenance. The bird maintains water content of the mound at a level ( hivin x = 0.3 ml/g) that minimizes thermal conductivity and microbial heat production. Therefore, heat is retained in the mound and decomposition occurs slowly, reducing the requirement to collect fresh litter. Kangaroo Island mounds are larger than those in sub-tropical rainforest, probably because rates of decomposition of mound material are lower, not because of differences in either thermal conductivity of the material or ambient temperature.
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Enregistrement 8 de 26 - BA on CD January - June 1992
TI: Effect of temperature and humidity on evaporative water loss in Anna's hummingbird (Calypte anna).
AU: POWERS-D-R
SO: JOURNAL OF COMPARATIVE PHYSIOLOGY B BIOCHEMICAL SYSTEMIC AND ENVIRONMENTAL PHYSIOLOGY 162(1): 74-84
PY: 1992
LA: English
AB: Evaporative water loss (EWL), oxygen consumption ( ovrhdot V-O-2), and body temperature (T-b) of Anna's Hummingbirds (Calypte anna; ca. 4.5 g) were measured at combinations of ambient temperature (T- a) and water vapor density (rho-va) ranging from 20 to 37 degree C and 2 to 27 g cntdot m-3, respectively. The EWL decreased linearly with increasing rho-va at all temperatures. The slopes of least squares regression lines relating EWL to rho-va at different temperatures were not significantly different and averaged -0.50 mg H-2O cntdot m-3 cntdot g-2 cntdot h-1 (range: -0.39 to -0.61). Increased rho-va restricted EWL in C. anna more than has been reported for other endotherms in dry air. The percent of metabolic heat production dissipated by evaporation ( ovrhdot H-e/ ovrhdot H-m) was lower than that of other birds in dry air, but higher than that for other birds at high humidity when T-a lt 33 degree C. When T-a gt 33 degree C the effect of humidity on ovrhdot H-e/ ovrhdot H-m was similar to that in other birds. Calypte anna might become slightly hyperthermic at T-a gt 37 degree C, which could augment heat transfer by increasing the T-b - T-a gradient. Body temperature for C. anna in this study was 43 degree C ( intramuscular) at T-as between 25 and 35 degree C, which is above average for birds. It is estimated that field EWL is less than 30% of daily water loss in C. anna under mild temperature conditions ( lt 35 degree C).
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Enregistrement 9 de 26 - BA on CD January - June 1992
TI: Effects of Protocalliphora braueri (Diptera: Calliphoridae) parasitism and inclement weather on nestling sage thrashers.
AU: HOWE-F-P
SO: JOURNAL OF WILDLIFE DISEASES 28(1): 141-143
PY: 1992
LA: English
AB: Infection with blow fly larvae (Protocalliphora braueri) had no effect on sage thrasher (Oreoscoptes montanus) nestling weight or size at fledging nor on mean fledging age. However, the combination of cold, wet weather and parasite infection did significantly reduce nestling survival and the percent young fledged.

Enregistrement 10 de 26 - BA on CD January - June 1992
TI: Thermoregulatory behavior of rock doves roosting in the Negev Desert.
AU: FERNS-P-N
SO: JOURNAL OF FIELD ORNITHOLOGY 63(1): 57-65
PY: 1992
LA: English
AB: Free-living Rock Doves (Columba livia) were observed roosting throughout the day on ledges in a canyon in the Negev Desert. Potential thermoregulatory behaviors were recorded, including movement between sites in order to remain in the shade, the adoption of postures minimizing energy expenditure (and enhancing convective cooling), feather erection consistent with the cutaneous evaporation of water (and enhancing convective cooling) and elevated rates of blinking. These observations are consistent with recent laboratory studies on the heat balance of Rock Doves.

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Enregistrement 11 de 26 - BA on CD January - June 1992
TI: Some observations of sunbathing in swallows.
AU: BLEM-C-R; BLEM-L-B
SO: JOURNAL OF FIELD ORNITHOLOGY 63(1): 53-56
PY: 1992
LA: English
AB: Tree Swallows (Tachycineta bicolor), Violet-green Swallows (T. thalassina) and Barn Swallows (Hirundo rustica) were observed sunbathing under conditions that produced apparent hyperthermia as evidenced by gaping, posture and timing of exposure. Sunbathing was observed only on days having air temperatures above 30 C, medium to high humidities and low wind velocities. Duration of sunning behavior was short, never exceeding 2 min. The substrate of sunning sites under these conditions always exceeded 47 C. It appeared that swallows were sunbathing in a fashion that led to short-term heat stress. This implies that the function of this form of sunbathing in these swallows is for a purpose other than thermoregulation.

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Enregistrement 12 de 26 - BA on CD January - June 1992
TI: Breeding success of geese and swans on Vaygach Island (USSR) during 1986-1988: Interplay of weather and arctic fox predation.
AU: SYROECHKOVSKIY-Y-V; LITVIN-K-Y; EBBINGE-B-S
SO: ARDEA 79(3): 373-382
PY: 1991
LA: English
AB: Nesting success of Barnacle Geese Branta leucopsis, Tundra Been Geese Anser fabalis rossicus, White-fronted Geese Anser albifrons and Bewick's Swans Cygnus columbianus bewickii on a 120 km-2 study area on Vaygach Island in northern Russia (70 degree 15'N, 58 degree 47'E) has been studied during three seasons. These data are compared with the proportion of first-winter birds determined on the wintering grounds in The Netherlands. Direct observations of arctic for Alopex lagopus predation on nests, weather conditions during egg-laying and incubation are described. Both lemming cycles and meterological conditions have an impact on breeding success of geese and swans, but the relative contribution of each remains to be elucidated.

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Enregistrement 13 de 26 - BA on CD January - June 1992
TI: The effects of chronic exposure to elevated environmental temperature on intestinal morphology and nutrient absorption in the domestic fowl (Gallus domesticus).
AU: MITCHELL-M-A; CARLISLE-A-J
SO: COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY A COMPARATIVE PHYSIOLOGY 101(1): 137-142
PY: 1992
LA: English
AB: Exposure of growing broiler chickens to elevated environmental temperature (35 degree C) for two weeks, markedly reduced food intake (29%) and growth rate (37%) compared to birds maintained at 22 degree C. These changes in growth were accompanied by increased in vivo jejunal uptakes of galactose (36%) and methionine (50%) measured per unit intestinal dry weight. Both the electrogenic ( phloridzin sensitive) and non-electrogenic (phloridzin insensitive) components of galactose absorption were increased by 24 and 52% respectively during the chronic heat stress. The size of the absorptive compartment may be reduced by the heat stress as reflected by decreased villus heights (19%) and wet (26%) and dry ( 31%) weights per unit length of jejunum. It is suggested that the changes in hexose and amino acid during chronic exposure to elevated ambient temperature may reflect adaptations to optimise nutrient absorption in the face of reduced nutrition and decreases in the size of the absorptive compartment. A functional hypothyroidism (plasma luminal T3 decreased by 66%) associated with heat stress may contribute to the observed alterations in jejunal structure and function.

Enregistrement 14 de 26 - BA on CD January - June 1992
TI: Standard metabolic level and insulative characteristics of eastern house finches, Carpodacus mexicanus (Mueller).
AU: ROOT-T-L; O'CONNOR-T-P; DAWSON-W-R
SO: PHYSIOLOGICAL ZOOLOGY 64(5): 1279-1295
PY: 1991
LA: English
AB: Following the release of house finches from southern California ( CA) on Long Island, New York, in 1940, the species has become established in eastern North America, including Michigan (MI) and Ohio (OH), despite cold winters. Standard metabolic rates (SMRs) of MI-OH birds, like those of house finches from Colorado (CO) and CA, did not differ signifiantly between winter and late spring. Geographical comparisons are more complex. Standard metabolic rate does not vary significantly among the three populations during late spring. Additionally, the winter value for the MI-OH house finches resembles that for CO birds. However, SMR for individuals in these two populations significantly exceeds that for the CA birds, suggesting some linkage between severity of winter climate and metabolic level. Analysis of thermal conductance (c) for MI-OH house finches indicates a significantly higher insulation value in winter than in late spring, a circumstance we ascribe to more worn plumage in the latter season. Winter values of c for MI-OH house finches and CA birds are similar. This finding and some previous findings on winter acclimatization in house finches from several localities suggest that geographic variation in their cold response results primarily from metabolic rather than insulative adjustments.

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Enregistrement 15 de 26 - BA on CD January - June 1992
TI: Habitat use, survival, and causes of mortality among mallard broods hatched near the James River in North Dakota.
AU: KRAPU-G-L; LUNA-C-R
SO: PRAIRIE NATURALIST 23(4): 213-222
PY: 1991
LA: English
AB: Habitat use and survival by nine mallard (Anas platyrhynchos) broods from nests on the James River floodplain and adjacent drift plain were monitored during summer 1987, Radio-marked broods were relocated an average of 22% of the time in the river channel, 22% in oxbow ponds, 43% in a large sewage lagoon complex, and 13% in basin wetlands. Four of the six broods hatched on the floodplain stayed primarily in riverine wetlands throughout the brood-rearing period. Seven of nine broods fledged at least one young; a total of 27 ducklings survived to fledgling of the 82 that hatched. The seven hens that fledged young used an average of two wetlands each from hatching to fledgling. Mink and raptor predation and adverse weather conditions were the principal identified causes of mortality. Potential effects on waterfowl production of planned downstream irrigation, a part of the Reformulated Garrison Diversion Unit, are discussed and recommendations are made to reduce adverse impacts to wildlife.

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Enregistrement 16 de 26 - BA on CD January - June 1992
TI: Microclimate of roost sites selected by wintering bramblings Fringilla montifringilla.
AU: JENNI-L
SO: ORNIS SCANDINAVICA 22(4): 327-334
PY: 1991
LA: English
AB: The topographical situation and the vegetation of mass roosts selected by Bramblings in Switzerland show that they are protected against both wind and cold air. This was confirmed by measurements of nightly minimum temperatures at two roosts. Measurements of wind velocity in the surroundings of one roost suggest that the most wind protected side was chosen among 10 similar coniferous woods within several km. The distribution of mass roots shows that they are often located at the periphery of the best and most visited feeding areas. The energetic advantages of a peripheral mass roost are estimated by comparision with a hypothetical central mass roost and with birds roosting singly or in small groups. Roost site selection of Bramblings can be evaluated at four different levels. (1) Communal roosting cannot be explained by microclimatic advantages of the roost site alone. ( 2) The regional location of a mass roost could be partly due to the microclimate of the site. (3) Within a certain region, Bramblings select microclimatically favourable sites. (4) At the roost site, Bramblings select dense vegetation.

Enregistrement 17 de 26 - BA on CD January - June 1992
TI: Substrate metabolism under cold stress in seasonally acclimatized dark-eyed juncos.
AU: SWANSON-D-L
SO: PHYSIOLOGICAL ZOOLOGY 64(6): 1578-1592
PY: 1991
LA: English
AB: Seasonally acclimatized dark-eyed juncos were exposed to one of three temperature regimes. 30 degree C (thermoneutrality), -12 degree C (moderate cold), or 2 degree C in a 20.9% oxygen/79.1% helium gas mixture (severe cold), for 2 h or until they became hypothermic. Plasma glucose and free fatty acids (FFA), pectoralis muscle and liver glycogen, and pectoralis lactate were measured after exposure. Pectoralis muscle mass increased by 28% in winter. This increased muscle mass may assist in improving cold tolerance by increasing capacity for shivering thermogenesis in winter birds . Plasma glucose was significantly reduced and plasma FFA were significantly elevated under severe cold in winter. No differences in plasma metabolites with temperature were detected in summer. Pectoralis muscle glycogen decreased with increasing severity of cold stress at both seasons, but winter levels were significantly greater than summer levels under severe cold. No temperature-induced differences in liver glycogen were apparent, but pooled winter values significantly exceeded summer values. Pectoralis lactate was significantly lower under severe cold at both seasons. In addition, mean lactate values for birds becoming hypothermic in both summer (n = 7) and winter (n = 1) were markedly lower than for normothermic birds at the same test temperatures. These data are consistent with a pattern of augmented preferential use of FFA to support shivering, coupled with sparing of muscle glycogen, in winter birds relative to summer birds. Furthermore, the decrement of pectoralis lactate with hypothermia may suggest a link between a reduced ability to mobilize muscle glycogen and the onset of hypothermia.

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Enregistrement 18 de 26 - BA on CD January - June 1992
TI: Interaction of operant behaviour and autonomic thermoregulation in the domestic fowl.
AU: HOOPER-P; RICHARDS-S-A
SO: BRITISH POULTRY SCIENCE 32(5): 929-938
PY: 1991
LA: English
AB: 1. Domestic fowls were trained to peck a disc in order to receive a limited thermal reinforcement. 2. When subsequently tested, their use of the operant response was a function of ambient temperature, decreasing from 0 to 24 degree C and rising again steeply from 28 to 42 degree C. 3. Under cool conditions changes in rate of heat production were of major significance in maintaining homeothermy, whilst in the heat the operant response was used in preference to, or in addition to, thermal panting. 4. Data from the behavioral studies, together with those on autonomic effector mechanisms, indicate that optimal thermal conditions for the fowl are likely to be attained at 22 to 24 degree C.

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Enregistrement 19 de 26 - BA on CD January - June 1992
TI: Mortality of waterbirds in the Delta area, southwest Netherlands during the three cold winters of 1985, 1986 and 1987.
AU: MEININGER-P-L; BLOMERT-A-M; MARTEIJN-E-C-L
SO: LIMOSA 64(3): 89-102
PY: 1991
LA: Netherlandish
AB: As a result of severe weather during the winters of 1985, 1986 and 1987 (figures 1 and 4), notable mortality occurred among waterbirds wintering in the Delta area, SW. Netherlands (figure 2). Total numbers of victims found were 4712, 7669 and 4570 respectively (table 1). Especially Oystercatcher (9811 birds found dead, 58% of all birds found), Shelduck (1114, 7%) and Redshank ( 702, 5%) were heavily afflicted. Redshank was the most vulnerable wader species whereas Dunlin and Bar-tailed Godwit were hardly affected. Mortality among Oystercatchers was relatively low in 1985, but considerably larger in 1986 and 1987 (figures 6a, 6b and 6c). Mortality among non-wader species (excluding Shelduck) was small: on average 1.2, 1.6 and 0.4% of the numbers counted (table 3). In all wader species except Knot, the proportion of juvenile birds among the victims was larger than in the populations present, as derived from captures (figure 7). The differences between wintering strategies of various wader (sub)species are discussed. Since smaller birds have higher energy requirements to maintain their body temperature than larger birds, it is assumed that it is more risky for small birds to winter in northern areas. Indeed, small (sub)species generally winter in larger numbers farther south than large (sub)species (figure 8). In all three winters the relative and absolute mortality in the Oosterschelde was higher than in the adjacent Westerschelde (figure 10). Due to the construction of a storm-surge barrier and two secondary dams, the tidal amplitude in the Oosterschelde was reduced from an original 3.7 m to 3.2 m in the winter of 1986, and to 2.4 m in the winter of 1987 (figure 3). This resulted in: 1) a reduction of intertidal area of 4 and 12% respectively; 2) an increased formation of ice due to an increased residence time of the

water. The greater part of cockle and mussel beds, the most important feeding areas of Oystercatchers, are situated in the lowest sections of intertidal zones. Due to reduction of tidal amplitude, these sections were exposed either during a shorter period of time, or not at all. This, in combination with increased formation of ice, is the major cause of the large numbers of (adult) Oystercatchers among the victims in 1986 and 1987. The tidal reduction seems to have had little or no effect on mortality in other species.

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Enregistrement 20 de 26 - BA on CD January - June 1992
TI: Influences of climate on density and breeding of goshawk Accipiter gentilis and red kite Milvus milvus.
AU: DOBLER-G
SO: VOGELWELT 112(4): 152-162
PY: 1991
LA: German
AB: From 1985 to 1988, 13 breeding pairs of Goshawk and 21 pairs of Red Kite were censused within an area of 510 km-2 in southwestern Germany. While the Goshawks' nearest neighbour distances increased with an increase in elevation, those of the Red Kites did not. Additionally, the median fledging date of Goshawks (16th/17th June) was significantly earlier than the Red Kites' (20th June). The fledging dates of both species, however, correlated positively with elevation. Finally, the mean breeding success was 1.8 fledged young per nest in Goshawk and 2.0 fledglings per nest in Red Kite. In the latter, the breeding success (mean number of fledglings per nesting place) declined significantly with increases in elevation, while in Goshawks such a decline was insignificant.

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Enregistrement 21 de 26 - BA on CD January - June 1992
TI: Spatial and temporal variation in bird communities and populations in north-boreal coniferous forests: A multiscale approach.
AU: VIRKKALA-R
SO: OIKOS 62(1): 59-66
PY: 1991
LA: English
AB: I studied bird populations and communities in northern Finland by taking different spatial scales and temporal variation into account. Habitat selection patterns and breeding biology of the Siberian tit Parus cinctus, which is a typical species north-boreal coniferous forests, was studied in detail. In north-boreal coniferous forests both larger and smaller scale phenomena affect patterns observed at a particular scale, and therefore, a multiscale approach is necessary in understanding the dynamics of avian biota. The sporadic occurrence of nomadic species such as two-barred crossbills and owls reflected the importance of the large biogeographic scale: ecological events occurring in the taiga belt far away affected bird communities in northern Finland. Regional variation of bird communities in old, virgin forests was similar to the overall regional variation of avian biota, because 70-80% of bird pairs in virgin forests are habitat generalists. Regional changes in the structure of forests and the increasing harshness of the climate to the north were important for the spatial dynamics of the bird communities. The local effects of habitat alteration (forestry) on bird populations were parallel to the long-term regional population trends of birds . The patterns of between-habitat changes in bird densities caused by forest management were connected with processes at the smaller, within-habitat scale. The long-term decline of the Siberian tit owing to heavy forest management could be explained by events a at local population scale, as the offspring production of the tit was poor in heavily thinned forests. Year-to-year variation in population densities of migratory species was similar in managed and virgin forests probably due to environmental unpredictability and harshness in the north.

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Enregistrement 22 de 26 - BA on CD January - June 1992
TI: Zebra finch incubation: Brood patch, egg temperature and thermal properties of the nest.
AU: ZANN-R; ROSSETTO-M
SO: EMU 91(2): 107-120
PY: 1991
LA: English
AB: Incubation was investigated in a wild population of zebra finches Taeniopygia guttata in northern Victoria (Australia) and comparisons made with wild-caught birds. A data logger recorded temperature readings from thermocouples inside eggs, nests, nesting bushes and exposed positions adjacent to nesting bushes. Both sexes incubate but only the female has a broad patch; this forms at the start of incubation and regresses soon after eggs hatch. Females incubated at night and both sexes shared incubation during the day. There were no consistent differences in the temperature of developing eggs heated by the two sexes nor did the sexes differ in their ability to rewarm cold eggs; fluctuations in incubation temperature also did not differ consistently between the sexes. Incubation began the day the fourth egg was laid for clutches qtoreq 5 or the day the last egg was laid for smaller clutches. Hatching was more synchronous in the wild than in captivity. The ability of the nest to maintain a temperature

differential was limited: air temperatures in the roof of the nesting chamber of enclosed roosting and breeding nests followed ambient temperatures closely when conditions were mild but the nest provided an insulating effect that ameliorated low temperatures.

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Enregistrement 23 de 26 - BA on CD January - June 1992
TI: A test of the self-incubation hypothesis for desert birds that build a rampart of stones in front of their nests.
AU: AFIK-D; WARD-D; SHKEDY-Y
SO: JOURNAL OF THERMAL BIOLOGY 16(5): 255-260
PY: 1991
LA: English
AB: 1. Sixteen species of ground-nesting desert birds build ramparts of stones around the entrance to their nests. 2. We tested Orr's hypothesis (Orr Y. (1970) Condor 72, 476-478) that the rampart of the nest of the Desert Lark Ammomanes deserti, in the Negev desert of Israel, facilitates self-incubation by its ameliorative influence on nest temperatures. 3. We found that the rampart significantly lowered the nest temperature relative to ambient temperature in the heat of the day in 3 of the 5 nests studied. 4. The effects of the rampart on the heating rate of the nests were equivocal, reducing this rate in 2 nests and increasing it in 2 others. 5. Our results indicate that the effect of the rampart is inconsistent with Orr's hypothesis and that there is considerable variation in the biophysical effects of the rampart, in spite of the considerable selective force expected of high ambient temperatures in the desert in early summer.

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Enregistrement 24 de 26 - BA on CD January - June 1992
TI: Population dynamics of grey partridge (Perdix perdix) in northern Italy.
AU: MONTAGNA-D; MERIGGI-A
SO: BOLLETTINO DI ZOOLOGIA 58(2): 151-156
PY: 1991
LA: English
AB: Population dynamics of grey partridge was studied from 1982 to 1986 in northern Italy in order to evaluate fluctuations in density and the relationships between population parameters and climatic factors. The general trend was a clear decrease both in spring and summer density after 1984, weighting 34.6% and 22.2% respectively, mainly due to severe winters. The reproductive success and the recruitment were negatively correlated with spring density. Brood size significantly decreased through the rearing season and chick mortality occurred mainly within the first 30 days after hatching in 1985, while in 1984 it was distributed over the whole growing period. It was also significantly related to the hatching period, earlier broods showing higher mortality. Chick mortality was strongly related to weather conditions in spring, which negatively affected the abundance and distribution of insects. Adult losses from spring to summer were found to be negatively related to reproductive success and positively to spring density. Both density-dependent and climatic factors appeared responsible for a control of population levels. Severe winters and cold springs represented limiting factors: however, the population showed ability to recover by increasing reproductive success and recruitment.

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Enregistrement 25 de 26 - BA on CD January - June 1992
TI: Hazel grouse night roost site preferences when snow-roosting is not possible in winter.
AU: SWENSON-J-E; OLSSON-B
SO: ORNIS SCANDINAVICA 22(3): 284-286
PY: 1991
LA: English
AB: Hazel Grouse Bonasa bonasia typically roost in snow burrows at night in winter, but this is often not possible in maritime climate . The alternative, roosting in trees, was studied in south-central Sweden during three winters. Data from 64 roost sites showed that Hazel Grouse preferred to roost in Norway spruce Picea abies, the tree species on the area providing the greatest amount of vertical cover. Roost trees were consistently shorter than the surrounding canopy trees and birds roosted low in the trees. Roosting sites had a significantly higher density than expected of both spruces and total trees. Thus, Hazel Grouse roost sites had more vertical and horizontal cover than expected. This type of site probably provided thermal benefits to roosting grouse.

Enregistrement 26 de 26 - BA on CD January - June 1992
TI: Geographic patterns in species occurrence of Tennessee's breeding birds.
AU: NICHOLSON-C-P
SO: JOURNAL OF THE TENNESSEE ACADEMY OF SCIENCE 66(4): 195-200
PY: 1991
LA: English
AB: Distributional information on the breeding birds of Tennessee (USA) , obtained from preliminary results of the Tennessee Breeding Bird Atlas Project, was analyzed with clustering and ordination techniques to define bird communities and correlated environmental factors. After elimination of unevenly sampled, very rare, and ubiquitous species, information on 107 bird species in 472 sample blocks of 5.5 times 4.5 km, systematically distributed across the state, was available. Four distinctive communities were identified: at high elevations along the eastern border, in extreme northeast Tennessee, in the Cumberlands/low Blue Ridge, and in the Mississippi River Floodplain/Coastal Plain. The remaining community consisted of most of the Ridge and Valley, Highland Rim, Central Basin, and West Tennessee Uplands. Ordination showed a distinct west to east gradient inversely related to maximum July temperature and directly related to increasing precipitation and elevation. The number of species in a sample block ranged from 20 to 87 (mean = 64) and was lowest within the spruce-fir vegetation type.

Section 2

Mots-clés: insect and climate change

**Section 2**

Mots clés: insect and climate change

Enregistrement 2 de 4 - BA on CD January - June 1992
TI: Quantitative biogeography of the bark beetles (Coleoptera, Scolytidae) in northern Europe.
AU: HELIOVAARA-K; VAISANEN-R; IMMONEN-A
SO: ACTA FORESTALIA FENNICA 29(9): 2-35
PY: 1991
LA: English
AB: Biogeographical patterns of the Scolytidase in Fennoscandia and Denmark, based on species incidence data from the approximately 70 km times 70 km quadrats (n = 221) used by Lekander et al. (1977), were classified and related to environmental variables using multivariate methods (two-way indicator species analysis, detrended correspondence analysis,canonical correspondence analysis). The distributional patterns of scolytid species composition showed similar features to earlier presentd zonations based on vegetation composition. One major difference, however, was that the region was more clearly divided in an east-west direction. Temperature variables associated with the location of the quadrat had the highest canonical coefficient values on the first axis of the CCA. Although these variables were the most important determinant of the biogeographical variation in the beetle species assemblages, annual precipitation and the distribution of Picea abies also improved the fit of the species data. Samples with the most deviant rarity and typicalness indices for the scolytid species assemblages in each quadrat were concentrated in several southern Scandinavian quadrats, in some quadrats in northern Sweden, and especially on the Swedish islands (Oland, Gotland, Gotska Sandon) in the Baltic Sea. The use of rarity indices which do not take the number of species per quadrat into account, also resulted in high values for areas near Stockholm and Helsinki (Finland) with well-known faunas. Methodological tests in which the real changes in the distribution of Ips acuminatus and I. amitinus were used as indicators showed that the currently available multivariate methods are sensitive to small faunal shifts even, and thus permit analysis of the fauna in relation to environmental changes. However, this requires more detailed monitoring of the species' distributions over longer time spans. Distributions of seven species (Scolytus intricatus, S. laevis, Hylurgops glabratus, Crypturgus cinereus, Pityogenes saalasi, Ips typographus and Xyleborus dispar) were predicted by logistic regression models using climatic variables. In spite of the deficiencies in the data and the environmental variables selected, the models were relatively good for several but not for all species. The potential effects of climate change on bark beetles are discussed.

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Enregistrement 3 de 4 - BA on CD January - June 1992
TI: Temperature-dependent development of the mountain pine beetle ( Coleoptera: Scolytidae) and simulation of its phenology.
AU: BENTZ-B-J; LOGAN-J-A; AMMAN-G-D
SO: CANADIAN ENTOMOLOGIST 123(5): 1083-1094
PY: 1991
LA: English
AB: Temperature-dependent development of the egg, larval, and pupal life-stages of the mountain pine beetle (Dendroctonus ponderosae Hopkins) was described using data from constant-temperature laboratory experiments. A phenology model describing the effect of temperature on the temporal distribution of the life-stages was developed using these data. Phloem temperatures recorded in a beetle-infested lodgepole pine (Pinus contorta Douglas) were used as input to run the model. Results from model simulations suggest that inherent temperature thresholds in each life-stage help to synchronize population dynamics with seasonal climatic changes. This basic phenological information and the developed model will facilitate both research and management endeavors aimed at reducing losses in lodgepole pine stand caused by mountain pine beetle infestations.

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Enregistrement 3 de 28 - BA on CD July - December 1992
TI: Using montane mammals to model extinctions due to global change.
AU: MCDONALD-K-A; BROWN-J-H
SO: CONSERVATION BIOLOGY 6(3): 409-415
PY: 1992
LA: English
AB: We use data on the species-area relationship and the nested subset structure of the boreal mammal faunas inhabiting isolated mountaintops in the Great Basin to develop a simple quantitative model that predicts the number and identity of species that would go extinct under an assumed scenario of changing climate and vegetation. Global warming of 3 degree C is predicted to cause the loss of 9-62% of the species inhabiting each mountain range and the extinction of three of fourteen species throughout the region. These results suggest (1) that it is possible to make highly plausible

predictions about the susceptibility of species to extinction without detailed information about their population biology, and (2) that global and regional environmental changes seriously threaten the survival of species that are restricted in distribution to both natural "habitat islands" and biological reserves.

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Enregistrement 8 de 28 - BA on CD July - December 1992
TI: The phenology of white spruce and the spruce budworm in northern Alberta.
AU: VOLNEY-W-J-A; CEREZKE-H-F
SO: CANADIAN JOURNAL OF FOREST RESEARCH 22(2): 198-205
PY: 1992
LA: English
AB: Studies on the development of spruce budworm (Choristoneura fumiferana (Clem.)) on white spruce (Picea glauca (Moench) Voss) were conducted in northern Alberta (Canada) in 1969 and again in 1990. The phenology of this insect and its host were described using stochastic models. The synchrony between host and insect is remarkable; each instar specializes on a particular shoot developmental stage, with feeding ceasing when shoots start to become lignified. There was little difference between estimates for the duration of the feeding stages of populations observed in 1969 and those studied in 1990. The models also described the variation that might be encountered in treatment blocks when operational considerations of scheduling treatments over large areas are a concern. When measured in degree-days, the initiation of emergence is later and the postemergence period is shorter in these northern populations than those reported for populations in southern Canada on the same host. The nature of the seasonal controls of spruce budworm development is unknown, but the differences between northern and southern populations of the insect suggest that knowledge of these controls will be invaluable if the status of these populations is to be evaluated under climate-change scenarios. The synchrony with host development and the short duration of the early instars together with their habit of feeding in protected locations under bud caps suggest that aerially applied controls that depend on the insect acquiring lethal doses through ingestion have to be targeted to the last, sixth, instar. These observations also suggest that population suppression, rather than foliage protection, would be the better control strategy.

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Enregistrement 12 de 28 - BA on CD July-December 1993
TI: Conservation of Parnassius in France: Population status from 1990 to 1992 (Lep. Papilionidae).
AU: BRACONNOT-S; DESCIMON-H; VESCO-J-P
SO: ALEXANOR 18(2): 99-111
PY: 1993
LA: French
AB: A provisional survey of the state of the populations of Parnassius is presented. The distribution of P. phoebus and P. mnemosyne seems to be generally stable and these two species do not appear endangered on their area on the whole. On the contrary, numerous extinctions of marginal populations of P.apollo were noticed in Massif Central and the Jura. Spontaneous or deliberate afforestation of habitats is the main cause of this process. The same species seems to have vanished from the Vosges after 1976. Moreover, after the abnormal climatic sequence of 1989 and 1990 winters, many low elevation colonies of P. apollo and P. mnemosyne have vanished or suffered a dramatic decrease.If the "global climate change" pronosticated by some climatologists goes on, the distribution area of Parnassius will be strongly reduced in massifs other than the Alps and the Pyrenees.

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Enregistrement 13 de 28 - BA on CD July-December 1993
TI: Relationships between water beetle distributions and climatic variables: A possible index for monitoring global climatic change.
AU: EYRE-M-D; FOSTER-G-N; YOUNG-A-G
SO: ARCHIV FUER HYDROBIOLOGIE 127(4): 437-450
PY: 1993
LA: English
AB: The role of climate in determining water beetle species' distribution was investigated using data from 495 10-km national grid squares in northern England and southern Scotland. Four climatic variables (temperature, rainfall, sunshine and windspeed) were ordinated to produce a climate index and this was used in logistic regression with incidence of water beetle species. The distribution of eighty-seven species was correlated with the climate index. The probable occurrence of two species before and after a supposed climate change was investigated.Other factors affecting water beetle species distributions are discussed but it can be envisaged that if climatic influences can be separated from other environmental factors, the distribution of water beetle species may be used as an index for monitoring climate change.

Enregistrement 16 de 28 - BA on CD January-June 1994
TI: Effects of temperature elevation on a field population of Acyrthosiphon svalbardicum (Hemiptera: Aphididae) on Spitsbergen.
AU: Strathdee-A-T; Bale-J-S; Block-W-C; Coulson-S-J;Hodkinson-I-D; Webb-N-R
SO: Oecologia (Heidelberg) 96(4): 457-465
PY: 1993
LA: English
AB: A manipulation experiment was carried out on a field population of the aphid Acyrthosiphon svalbardicum near Ny Alesund, on the high arctic island of Spitsbergen, using cloches to raise temperature. An average rise in temperature of 2.8 deg.C over the summer season markedly advanced the phenology of both the host plant Dryas octopetala and the aphid. Advanced aphid phenology, with concomitant increases in reproductive output and survival, and successful completion of the life-cycle led to an eleven-fold increase in the number of overwintering eggs. Thermal budget requirements in day degrees above 0 degree C were calculated for key life-cycle stages of the aphid. Temperature data from Ny Alesund over the past 23 years were used to calculate thermal budgets for the field site over the same period and these were compared with the requirements of the aphid. Each estimated thermal budget was then adjusted to simulate the effect of a + 2, +4, and -2 deg. C change in average temperature on aphid performance. This retrospective analysis (i) confirms that the life-cycle of A. svalbardicum is well suited to exploit higher summer temperatures, (ii) indicates that the annual success of local populations are sensitive to small changes in temperature and (iii) suggests that the aphid is living at the limits of its thermal range at Ny Alesund based on its summer thermal budget requirements.

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Enregistrement 17 de 28 - BA on CD January-June 1994
TI: Recent centuries of vegetational change in the glaciated north-eastern United States.
AU: Russell-E-W-B; Davis-R-B; Anderson-R-S; Rhodes-T-E;Anderson-D-S
SO: Journal of Ecology 81(4): 647-664
PY: 1993
LA: English
AB: 1. Pollen data from 55 sediment cores show complex patterns of change in the vegetation of the northeastern United States in recent centuries caused both directly and indirectly by human impact, as well as by climate change. 2. In the few centuries before European colonization, the abundance of Picea increased and Tsuga canadensis and Fagus grandifolia decreased in the nor-them part of the region, possibly due to climate cooling. In the rest of the region the vegetation was fairly stable in the few centuries before European colonization. 3. After European colonization, the abundance of Betula increased throughout the region in response to forest disturbance, while Tsuga canadensis and F. grandifolia decreased, at least in part because of greatly increased fire frequency. The decrease in T. canadensis was also caused by cutting for the tanning industry. In addition to Betula, successional species included Castanea dentata in the south and Abies balsamea in the north. Both of these have been severely affected in the last century by disease or insect infestation, probably exacerbated by their increased population densities. 4. Sorting out the direct and indirect causes of fluctuations in these species provides valuable information for predicting the responses of vegetation to continuing human impact and possible future changes in climate.

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Enregistrement 18 de 28 - BA on CD January-June 1994
TI: The carbon budget of Canadian forest: A sensitivity analysis of changes in disturbance regimes, growth rates, and decomposition rates.
AU: Kurz-W-A; Apps-M-J
SO: Environmental Pollution 83(1-2): 55-61
PY: 1994
LA: English
AB: Ecosystem responses to climate changes will affect the exchange of carbon (C) with the atmosphere, thus providing feedback for future climate response. We have developed a C budget model of Canadian forests and forest sector activities and used sensitivity analysis runs with changes in productivity,decomposition, and disturbance regimes to assess the sensitivity of the Canadian forest sector C budget over the next century. The model operates on data derived from Canada's National Forest Biomass Inventory, from the Oak Ridge National Laboratory global soil C data base, and from Canadian data bases that document areas annually disturbed by fire, insects, and harvesting. It simulates the dynamics of biomass and soil C pools (including detritus and coarse woody debris) as they are affected by growth,decomposition, and disturbances. For the reference run of the model, we assumed unchanging climate and disturbance regimes.Under these conditions, total ecosystem C increased by 2 Gt C(2-3%) over the 100-year simulation period. In the sensitivity analysis, we explored the effects of changes in the area annually disturbed by fire and insect-induced stand mortality (-60 to+300%); growth rates (-10 to +20%), decomposition rates (-10 to+25%), and combined changes in growth and decomposition rates. In every model run, the change of total ecosystem C relative

to the reference run was less than 10 degree . Combined changes to growth and decomposition rates yielded very small deviations from the results of the reference run (-0.8 to +1.2%). Because disturbance regime changes affect forest age-class structure as well as forest dynamics, they are expected to affect C budgets strongly. Total ecosystem C, however, is slightly more sensitive to changes in growth and decomposition parameters than to changes in disturbance regimes. Although the sensitivity analysis results suggest that C budgets are little affected by the range of parameter changes implemented here, we must emphasize that our sensitivity analyses do not account for potentially important processes, such as regeneration failure or the shifts in forest distribution.

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Enregistrement 24 de 28 - BA on CD 7/94-12/94
TI: Simulated climate change: A field manipulation study of polar microarthropod community response to global warming.
AU: Kennedy-A-D
SO: Ecography 17(2): 131-140
PY: 1994
LA: English
AB: Passive cloches were deployed at three altitudinally distinct sites on Signy Island, maritime Antarctica, to investigate the effect of ameliorated thermal environment upon fellfield microarthropod communities. Temperature was monitored at 1.5 m height, at ground surface level, and at 5 cm depth in cloche and control plots. During summer (December-March), cloches elevated monthly mean temperatures by up to 2.46 degree C at the soil surface and 2.20 degree C at 5 cm depth. Integrated air temperatures over consecutive 10 d periods were up to 4.65 degree C warmer in cloches than controls. During winter(April-November), snow cover of the fellfield sites buffered temperature variation and reduced the treatment effect. After eight years of these manipulations, sampling of the upper 50 mmof soil revealed consistently greater microarthropod populations within cloches than in controls (treatment effect: p lt 0.05).Maximum difference occupied at high altitude where thermal amelioration was greatest (site effect: p lt 0.05). Cloche populations of the numerically dominant collembolan Cryptopygus antarcticus Willem contained an increased proportion of small(length lt 750 mu-m) individuals. No species new to Signy Island were recorded. Relating these microarthropod populations to the ameliorated thermal environment suggests that Antarctic invertebrate communities may respond to global warming, as predicted by global circulation models, with an increase in abundance with little increase in diversity. However, this response could be indirect, the intermediate controlling factor being the percentage cover of the soil surface by vegetation,itself a function of climate change.

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Enregistrement 26 de 28 - BA on CD 1/95-6/95
TI: Responses of three saturniid species to paper birch grown under enriched CO-2 atmospheres.
AU: Lindroth-R-L; Arteel-G-E; Kinney-K-K
SO: Functional Ecology 9(2): 306-311
PY: 1995
LA: English
AB: 1. Interactions between trees and tree-feeding insects are likely to shift under conditions of enriched atmospheric CO-2 owing to changes in foliar chemical composition. This study addressed the effects of CO-2-mediated changes in leaf chemistry on performance of three silk moth (Saturniidae) species: cecropia (Hyalophora cecropia), luna (Actias luna) and polyphemus(Antheraea polyphemus Polyphemus). 2. Growth under elevated CO-2 atmospheres decreased nitrogen concentrations (23%) but tripled starch and doubled condensed tannin concentrations, resulting in a marked increase in foliar carbon:nitrogen ratio. 3. Survival of first stadium larvae was marginally reduced when reared on high CO-2 leaves. 4. Development rates were prolonged, growth rates tended to decline, consumption increased and food processing efficiencies decreased for fourth stadium larvae reared on high CO-2 leaves. The magnitude of responses varied among species. 5.Overall performance of these saturniid species, at least when feeding on birch, is predicted to decline under atmospheric CO-2 conditions anticipated for the next century.

Section 3

Mots-clés: climate change and wildlife

**Section 3**

Mots-clés: climate change and wildlife

Enregistrement 1 de 2 - BA on CD January - June 1992
TI: Influence of the trade-wind inversion on the climate of a leeward mountain slope in Hawaii.
AU: GIAMBELLUCA-T-W; NULLET-D
SO: CLIMATE RESEARCH 1(3): 207-216
PY: 1991
LA: English
AB: The climate of oceanic islands in the trade-wind belts is strongly influenced by the persistent subsidence inversion characteristic of the regions. In the middle and upper elevations of high volcanic peaks in Hawaii, climate is directly affected by the presence and movement of the inversion. The natural vegetation and wildlife of these areas are vulnerable to long-term shifts in the inversion height that may accompany global climate change. Better understanding of the climatic effects of the inversion will allow prediction of global-warming-induced changes in tropical mountain climate. To evaluate the influence of the inversion on the present climate of the mountain, solar radiation, net radiation, air temperature, humidity, and wind measurements were taken along a transect on the leeward slope of Haleakala, Maui. Much of the diurnal and annual variability at a given location is related to proximity to the inversion level, where moist surface air grades rapidly into dry upper air, The diurnal cycle of upslope and downslope winds on the mountain is evident in all measurements. Measurements indicate that the climate of Haleakala can be described with reference to 4 zones: a marine zone, below about 1200 m, of moist well-mixed air in contact with the oceanic moisture source; a fog zone found approximately between 1200 and 1800 m, where the cloud layer is frequently in contact with the surface; a transitional zone, from about 1800 to 2400 m, with a highly variable climate; and an arid zone, above 2400 m, usually above the inversion where air is extremely dry due to its isolation from the oceanic moisture source.

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Enregistrement 2 de 2 - BA on CD January - June 1992
TI: Potential impacts of global climate change on Pacific Northwest spring chinook salmon (Oncorhynchus tshawytscha): An exploratory case study.
AU: CHATTERS-J-C; NEITZEL-D-A; SCOTT-M-J; SHANKLE-S-A
SO: NORTHWEST ENVIRONMENTAL JOURNAL 7(1): 71-92
PY: 1991
LA: English
AB: Increases in atmospheric concentrations of greenhouse gases are predicted to raise global temperatures by up to 3 degree C over the next one-hundred years, which may have significant effects on natural resources. Even a smaller (2 degree C) temperature change may impact one prominant Pacific Northwest natural resource, the spring chinook salmon, Oncorhynchus tshawytscha. A computer model was developed by the Northwest Power Planning Council (NPPC) for use in developing the NPPC salmon enhancement plan for their Fish and Wildlife Program. Using this model, we investigate the impact of global warming on the production of spring chinook salmon in the Yakima subbasin of the Columbia River System. The model stimulates current prevailing environmental conditions and the implementation of improvements in salmon habitat planned by the NPPC. The data are then changed to reflect conditions that we infer to have existed between 6,000 and 8,000 years ago, when temperatures were approximately 2 degree C warmer than today. When the NPPC computer model is run under these altered conditions, it shows that projected climate change might reduce by half the Yakima River spring chinook salmon production predicted under both current and NPPC-improved conditions. These results strongly support the need for planned improvements in the fishery, since a 50% decline in existing fish populations could decrease spring chinook salmon sbd and possibly other salmonid populations sbd beneath levels needed for the survival of the species. More broadly, the results suggest that if future global warming takes a form similar to that of 6,000 years ago, it could have major effects on the salmon population of the Pacific Northwest. Although some races of salmon might have their survival enhanced, others might be harmed. We recognize that all species and races would not be affected in the same way as Yakima River spring chinook, yet global warming is still a matter of concern because many of the Pacific Northwest salmon stocks are already under stress from other causes. A more comprehensive and thorough analysis is urgently needed.

Enregistrement 6 de 24 - BA on CD 7/94-12/94
TI: Climate change impact on distribution and abundance of wildlife species: An analytical approach using GIS.
AU: Aspinall-R; Matthews-K
SO: Environmental Pollution 86(2): 217-223
PY: 1994
LA: English
AB: An analytical approach to modelling the likely impact of climate change on the distribution and abundance of wildlife species is described using examples from Scotland Data for present day distribution of wildlife and habitat are analysed using map data describing geographic variation in climatic factors. Climate data for the present day and under specified scenarios of change are themselves modelled within a GIS; climate modelling uses meteorological station data, climate change scenarios developed from GCMs and a variety of spatial interpolation techniques.The analytical procedure generates hypotheses defining ecological relationships between species distribution and climatic factors (monthly, seasonal and annual data). These relationships are then used to model the distribution of the species directly from climate and predict impacts of climate change. The analysis takes account of both direct impacts of climate on wildlife and indirect effects manifested through habitat response to climate change. The analytical procedure is implemented as a generic tool for inductive spatial analysis in GIS.

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Enregistrement 11 de 24 - BA on CD 1/95-6/95
TI: Plant species' response to climate change: Implications for the conservation of European birds.
AU: Huntley-B
SO: Ibis 137(SUPPL. 1): S127-S138
PY: 1995
LA: English
AB: Wildlife conservation faces new and extreme challenges in adapting to the accelerating dynamics of a world responding to global change. The Quaternary record shows that migration has been the usual response of organisms to environmental change. This record also reveals that forecast future climate changes are of a magnitude and in a direction unprecedented in recent earth history: the rate of these changes is likely also to surpass that of any comparable change during the last 2.4 million years.The relationship between a species' geographical distribution and present climate may be modelled by a surface representing the probability of encountering that species under given combinations of climate conditions. This 'climate response surface' then may be used to simulate potential future distributions of the species in response to forecast climate scenarios. Such simulations reveal the magnitude of the impacts of these forecast climate changes. Although to date this approach has been applied in Europe only to plants, it promises to be valuable also for other groups of organisms, including birds. Some bird species, however, may respond more directly to either habitat structure or presence of specific food plants; such factors may be incorporated into the models when required. The magnitude of likely vegetation changes necessitates a global approach to conservation if there is to be any hope of long-term success. Successful conservation of global biodiversity will depend upon conservation of the global environment and limitation of the human population much more than upon parochial efforts to conserve locally rare organisms or habitats.

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Enregistrement 12 de 24 - BA on CD 1/95-6/95
TI: Assessing impacts of climate change on forests: The state of biological modeling.
AU: Dale-V-H; Rauscher-H-M
SO: Climatic Change 28(1-2): 65-90
PY: 1994
LA: English

Section 4

Mots-clés: rainfall and bird

**Section 4**

Mots clés: rainfall and bird

Enregistrement 2 de 9 - BA on CD January - June 1992
TI: Distribution and relative abundance patterns of columbids in Puerto Rico.
AU: RIVERA-MILAN-F-F
SO: CONDOR 94(1): 224-238
PY: 1992
LA: English
AB: From July 1986 to January 1989 standardized call and sight counts were conducted to examine the distribution and relative abundance patterns of Plain Pigeons (Columbia inornata), White-crowned Pigeons (C. leucocephala), Scaly-naped Pigeons (C. squamosa), Zenaida Doves (Zenaida aurita), White-winged Doves (Z. asiatica), Mourning Doves (Z. macroura), Common Ground-Doves (Columbina passerina), Ruddy Quail-Doves (Geotrygon montana), Key West Quail-Doves (G. chrysia), and Bridled Quail-Doves (G. mystacea) during the different seasons of the year in the dry, moist and wet zones of Puerto Rico. The relative abundance of all columbids peaked during the spring-summer period (March-August) in the life zones. The relative abundance of Zenaida Doves and Common Ground-Doves peaked during the spring-summer, but a second noticeable peak occurred during the fall (September-November) in the dry zone. The seasonal patterns of relative abundance were detectable at local as well as regional scales of sampling, regardless of the observer involved and the counting technique applied. The detected patterns are not considered to be either the result of sampling error or of statistical artifacts. The seasonal patterns of relative abundance in the three major life zones probably represent the most general and repeatable aspect of the population dynamics of columbids in the island. Two components of the environment of columbids are considered of principal importance in determining their seasonal relative abundance in the life zones: (1) rainfall in the dry zone, and (2) fruiting phenology of key tree species in the moist and wet zones.

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Enregistrement 3 de 9 - BA on CD January - June 1992
TI: Cooperative enhancement of reproductive success in white-winged choughs.
AU: HEINSOHN-R-G
SO: EVOLUTIONARY ECOLOGY 6(2): 97-114
PY: 1992
LA: English
AB: White-winged choughs are a cooperatively breeding species which provide parental care to their young over and entire year. I traced the reproductive success of groups of white-winged choughs from the start of one breeding season to the next over 3 years. I examined the effect of helper number on timing of breeding, the success of each effort, the number of efforts made in a season, and the final reproductive success at the end of each year. Timing of commencement of breeding varied between years but was not related to group size. Early broods were not more successful than late broods. Nest building (July-September) commenced earlier in years which had high rainfall in July; choughs rely on rainfall for supplies of mud for nest construction. Most nest failures occurred gradually and were attributed to starvation of nestlings, although some sudden failures were attributed to predation. Large groups have more young by the beginning of the following season; this is due to higher fledging success and a greater likelihood of having second broods. Disappearance of young after fledging and during the transition to independent was not dependent on group size. Only groups of seven and above produce more than one young on average over the entire year; choughs provide one of themost marked cases for helpers enhancing the reproductive success of breeders. Large groups are virtually guaranteed of reproductive success over the whole year and grow more quickly than small groups. These results highlight the need to consider the effects of helpers over the entire period of reproduction and care of young, rather than just as fledging.

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Enregistrement 4 de 9 - BA on CD January - June 1992
TI: Hurricane effects on forest ecosystems in the Caribbean.
AU: TANNER-E-V-J; KAPOS-V; HEALEY-J-R
SO: BIOTROPICA 23(4 PART A): 513-521
PY: 1991
LA: English
AB: Hurricanes are common, potentially catastrophic events for ecosystems in the Caribbean. We synthesize the work reported in this issue, together with the existing literature, to discuss effects of hurricanes on Caribbean ecosystems and to highlight priorities for future work. Comparisons of the impacts of hurricanes on different ecosystems are made difficult by the lack of detailed meterological data, lack of prehurricane ecological data and differences between studies in types and timing of measurements made. Effects of recent hurricanes on Caribbean forest ecosystems include:

defoliation, ranging from complete in lowland wet forest in Nicaragua after Hurricane Joan to negligible in parts of Jamaican montane forest after Hurricane Gilbert; felling of trees by uprooting and snapping (80% in Nicaragua to 14% in Jamaica); and tree mortality, which is rarely recorded and generally low (13% in the Yucatan following Hurricane Gilbert to 3% to Puerto Rican montane forests following Hurricance Hugo). Damage to individual trees varies with topographic location, stand characteristics, tree size (large ones uprooting and small ones snapping in Dominica during Hurricane David, but not in Jamaica), and species characteristics (such as wood density), but it is difficult to generalize about these factors. Effects on animal populations are both direct and through reductions in food supplies. Frugivorous and nectarivorous birds were more severely affected than insectivorous species in the Virgin Islands and Jamaica. There is little information about hurricane effects on insect populations, but populations of two species of walking sticks in Puerto Rico declined sharply after Hurricane Hugo. Numbers of adults of one frog species in Puerto Rico quadrupled after Hurricane Hugo, but numbers of juveniles were severely reduced by the storm. Effects of hurricanes on the physical environment include modified microclimates due to increased light penetration through defoilated canopies and landslides triggered by rainfall. Increased litterfall led to increases in some soil nutrients, and fine root biomass was drastically reduced in a Puerto Rican montane forest. Recovery of forest ecosystems from hurricanes depends on a combination of seedling growth and resprouting of canopy trees. In several studies, seed germination was promoted by higher light and/or higher temperature, but seedling mortality also increased. The relative importance of newly germinated seedlings, advance regeneration, and regrowth of damaged adults has not been studied. The few long-term studies of adult trees show the expected decline in the proportion of pioneer and intolerant species with time after disturbance. Hurricanes may be the most important factor controlling species composition and some aspects of ecosystem dynamics in the Caribbean; there is much still to be learned, and we suggest some priorities for future research.

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Enregistrement 5 de 9 - BA on CD January - June 1992
TI: The Southern Oscillation and variations in waterfowl abundance in southeastern Australia.
AU: NORMAN-F-I; NICHOLLS-N
SO: AUSTRALIAN JOURNAL OF ECOLOGY 16(4): 485-490
PY: 1991
LA: English
AB: Mean sizes of duck hunters' bags on the opening days of annual waterfowl seasons at selected wetlands in southeastern Australia, between 1972 and 1990, are correlated with an index of the Southern Oscillation (SOI). Simple correlations exist between bag sizes at the various sites, and the mean bag size in Victoria shows a positive relationship with that obtained at Barrenbox Swamp, New South Wales. Bag sizes are most significantly correlated with monthly SOI some 25-28 months before the eventual start of an open season. Interannual variations in rainfall in eastern Australia are generated by the El Nino-Southern Oscillation, which is monitored by the SOI, and the water-fowl populations respond to changing water and wetland availability. Accepting that annual bag sizes represent an index of waterfowl abundance, the regional population size may be related to climatic events associated with changes in SOI values. Further consideration of the SOI and indices of waterfowl abundance may allow variations in legislative or management options well in advance of individual open seasons.

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Enregistrement 6 de 9 - BA on CD January - June 1992
TI: Factors affecting winter distribution and migration distance of wood ducks from southern breeding populations.
AU: HEPP-G-R; HINES-J-E
SO: CONDOR 93(4): 884-891
PY: 1991
LA: English
AB: We used direct band-recovery records of Wood Ducks (Aix sponsa) banded 1 April-15 September (1960-1987) in the southern and southeastern reference areas of Bowers and Martin (1975) to test whether winter distribution and migration distance were age- and sex-specific. Effects of variation in early-autumn temperature and precipitation conditions on winter distribution patterns also were studied. Latitude and longitude of winter band recoveries did not differ by age and sex in the southern reference area; but adult Wood Ducks tended to migrate shorter distances than young. In the southeastern reference area, recovery distributions of males and females also did not differ; but adults were distributed north and east of young birds, and migrated shorter distances. We predicted that Wood Ducks would move farther south in winter when early-autumn (October-November) temperature and spring-summer (April-September) precipitation were below normal. Adults were recovered farther south when precipitation was below average, but deviations from average temperatures were not associated with winter distribution. Young Wood Ducks occurred farther south when rainfall in spring-summer was less than normal and when average November temperature was colder than normal. We conclude that winter distributions of male and female Wood Ducks did not differ, but that adults migrated shorter distances than young. Variation in winter distribution was associated with early-autumn habitat suitability.

Enregistrement 7 de 9 - BA on CD January - June 1992
TI: Studies on the natural population dynamics and the time-specific life tables of bird cherry-oat aphid, Rhopalosiphum padi (L.).
AU: HE-F; QU-G; WANG-Y; ZHANG-J; ZHANG-G
SO: SINOZOOLOGIA 0(8): 95-116
PY: 1991
LA: Chinese
AB: The natural population dynamics and biology of R. padi (L.), on the primary host-pados and on the secondary host-maize, were investigated during 1986 and 1987. This species is believed to be holocyclic. Population numbers of bird cherry-oat aphid were sampled and correlated with various biotic and abiotic factors, namly, number of predators and parasites, daily air temperature means and extremes, daily percent relative humidity (RH), and daily rainfall. The effects of environmental factors on population dynamics of the apid were focused. The number and reproductive peaks of this species in the season were discovered from the instar distributions. Detailed study of instar distributions based on sampling every three or four days showed a fluctuation in stable age (instar) distribution until population collapse. Arthropods that have overlapping generations, including most aphid species, present challenging analytical problems for investigating the population dynamics. Hughes (1962, 1963) developed a method based on demographic theory for estimating potential population growth rates (e-lambda) from stage structure data and observed growth rates from actual changes in field population densities. The difference between these two rates at a given time represents time-specific mortality. To apply Hughes (1963) approach, one must have reliable estimates on potential population growth rates, since all other parameters estimated by Hughes, in addition to mortality, are dependent on the accuracy of potential growth rate ( e-lambda) estimated. Cater, et al. (1978) concluded that Hughes' estimates of potential rates of population increase were often over or under estimated depending on seasonal changes in stage structure, and that Hughes, use of a Chi-square goodness-of-fit test to detect divergence from a stable age (instar) distribution was not sufficiently sensitive. Because of these problems, Hutchison and Hogg (1985) modified Hughes' analytical procedure by incorporation r-m, the parameter was estimated on a physiological time scale (i.e. daydegree in instar periods) under fluctuating temperature conditions and absence of natural enemies, as the estimate of potential population growth rate (e-lambda). In this paper, Hughes' analytical approach and Hutchinson' modified procedure were used for construction time-specific life tables to examine the season population dynamics of R. padi (L.) and analyse the key factors affecting the population density. Both analytic procedures were also appraised.

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Enregistrement 8 de 9 - BA on CD January - June 1992
TI: Breeding success of egrets related to rainfall: A six-year Australian study.
AU: MADDOCK-M; BAXTER-G-S
SO: COLONIAL WATERBIRDS 14(2): 133-139
PY: 1991
LA: English
AB: The breeding success of four egret species (Egretta alba modesta, E. intermedia plumifera, E. garzetta immaculata and Ardeola ibis coromandus) was monitored over six seasons at two colonies in the Hunter Valley, New South Wales, Australia. For all species the mean number of young fledged per successful nest fluctuated among breeding seasons, with the greatest success in wet years. In decreasing order, the greatest fluctuations occurred in E. garzetta, E. alba and E. intermedia. The breeding success of A. ibis did not vary consistently with wet and dry breeding seasons. The three Egretta species are, to varying degrees, aquatic feeders, whereas A. ibis feeds mostly in dryland habitats and is less dependent on wetlands than the other three species. We postulate that food availability is the ultimate factor controlling breeding success.

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Enregistrement 9 de 9 - BA on CD January - June 1992
TI: The influence of rainfall and nest-site quality on the population dynamics of the Manx shearwater Puffinus puffinus on Rhum.
AU: THOMPSON-K-R; FURNESS-R-W
SO: JOURNAL OF ZOOLOGY (LONDON) 225(3): 427-438
PY: 1991
LA: English
AB: The Manx shearwater colony in the mountains of Rhum receives a high average rainfall, around 3000 mm, and nest burrows are subject to flooding. Colony hatching success rates on Rhum and neighbouring Canna are significantly negatively correlated with rainfall amounts during the incubation period. The incidence of heavy rainfall during incubation has a greater influence on hatching success than does total rainfall. Fledging success is unrelated to rainfall. Burrows vary with respect to their susceptibility to flooding during heavy rain. A 'Flooding Likelihood Index' (FLI) was devised which allowed 100 study burrows to be ranked with respect to their risk of flooding in a given rainfall event. Eggs were significantly more likely to be laid and to hatch in burrows less susceptible to flooding. In 1984 and

1985 the overall breeding success rate in burrows with an FLI lower than the median was more than twice that in those with higher than median FLIs. Male shearwaters showed a significantly greater tendency to move to different burrows following breeding failure in the previous season. This may be an adaptive response to the consistent differences in the quality of individual burrows. The shearwater population on Rhum may be limited by the availability of good quality nesting burrows.

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Enregistrement 15 de 208 - BA on CD July - December 1992
TI: Use of marshlands by common cranes in winter in south-western France.
AU: GENARD-M; LANUSSE-D
SO: ORNIS FENNICA 69(1): 19-28
PY: 1992
LA: English
AB: The number of Common Cranes (Grus grus) wintering in the main wintering grounds in SW France increased from 25 in 1977(first observation year) to 2500 in 1988. The annual variation observed around this general tendency can mainly be explained by autumn rainfall, which causes early flooding of the marshland used by the cranes. The night roosts are located in water basins and low heaths. During the day, the cranes prefer the low heaths,where they feed intensively. Five micro-habitats, defining an after-fire succession, are described in the low heaths. There growth of the vegetation after fires caused by military activities is rapid and the cranes seek out zones undergoing recolonization.The management of the heaths by fire seems to favour the cranes.

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Enregistrement 18 de 208 - BA on CD July - December 1992
TI: Territorial areas and shapes in the two species of village weavers (Ploceus cucullatus and Ploceus nigerrimus).
AU: DIN-N-A
SO: AFRICAN JOURNAL OF ECOLOGY 30(1): 42-48
PY: 1992
LA: English
AB: Sixteen territories of the black-headed village weaver and twenty of the chestnut-and-black weaver were quantitatively assessed for areas and shapes at three colonies on the University of Ife campus, Nigeria. The shapes of the territories were classified as elipsoid (E-type), triangulr (T-type) and quadrilateral (Q-type) from observations of the activities of the males. The territorial areas of the black-headed were larger than those of the chestnut-and-black weaver in sparse and dense colonies. The mean distance between the nests also varied, being greater in the former than in the latter colonies. The number of nests per territory, however, was higher in the black-headed than in the chestnut-and-black weaver. The rainfall Zeitgeber increased territorial aggressiveness and in one male chestnut-and-black weaver resulted in expansion of its territorial area. Site tenacity in the males was considered to be of a temporary nature, lasting about three breeding seasons.

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Enregistrement 19 de 208 - BA on CD July - December 1992
TI: Breeding of the black-headed village weaver (Ploceus cucullatus) and the chestnut-and-black weaver (Ploceus nigerrimus) in Ile-Ife, Nigeria.
AU: DIN-N-A
SO: AFRICAN JOURNAL OF ECOLOGY 30(1): 49-64
PY: 1992
LA: English
AB: The variations in the breeding seasons of the black-headed village weaver and the chestnut-and-black weaver were analysed in fifteen of the 30 colonies sighted at Ife and one colony on Ilesha Road, about 14 km to the east. Both species commenced large-scale breeding during the first peak in rainfall and established numerous unproductive satellite colonies. The changes in gonad weights indicated bimodal and discontinuous off-season breeding in the black-headed village weaver but breeding in the chestnut-and-black weaver was mainly unimodal, with two peaks observed in only one colony. The mean nest completion time and commencement of a new nest was 11 h (range = 9-15 h) and 6 days (range = 3-13 days), respectively whereas in the chestnut-and-black weaver the corresponding figures were 9 h(range = 6-11 h)and 3 days (range = 2-4 days). Mate attraction displays in both species were restricted during early stages of nest construction but were heightened on completion, when females were responsive. The mean bout lengths of under-nest and branch displays in the chestnut-and-black weaver were significantly (P lt 0.05) longer than in the black-headed village weaver. The pair bond formation and motivation of males to build a new nest were investigated.

Enregistrement 20 de 208 - BA on CD July - December 1992
TI: Demography and the genetically effective sizes of two populations of Darwin's finches.
AU: GRANT-P-R; GRANT-B-R
SO: ECOLOGY 73(3): 766-784
PY: 1992
LA: English
AB: The purpose of this study was to identify and quantify the demographic and genetic factors that favor long-term persistence of resident bird populations on small islands. Two species of Darwin's Ground Finches, Geospiza scandens (Cactus Finch) and G. fortis (Medium Ground Finch), were studied is Isla Daphne Major Galapagos (Pacific Ocean), from 1975 to 1991. Four cohorts born in the years 1975-1978 were followed to the point where almost every individual had died. Life tables were constructed from survival and reproductive data, and used to calculate genetically effective population sizes. Annual rainfall was highly variable and erratic. Extremes were 0 and 1359 mm. As a consequence the finch populations fluctuated in all demographic parameters. In years of little or no rainfall breeding did not occur, in years of abundant rainfall as many as eight breeding attempts were made by individual paris.Maximum ages were 15 yr for G. scandens and 14 yr for G. fortis. Males of both species tended to live longer than females and to breed later; most females bred for the first time at ages 1-3 yr, whereas most males bred for the first time at ages 2-6 yr. An unusual feature of the survival and reproductive schedules is an increase in reproductive value sometimes occurring moderately late in life more than once, associated with occasional extremely favorable conditions for reproduction.Harmonic mean breeding population sizes (N) were 94 G. scandens and 197 G.fortis. Effective population sizes (N-e) were much lower,principally as a result of a large variance in the production of recruits per parent, especially by G. fortis.Average effective sizes were 38 G. scandens and 60 G. fortis by one method of calculation, and slightly larger by another. The proportional rate of loss of selectively neutral heterozygosity or additive genetic variance in quantitative traits potentially caused by random genetic drift (1/2 N-e) in these populations is apprxeq 0.003-0.005, or 0.3-0.5%/yr, and between 0.8 and 1.4% per generation. We suggest that a general estimate for the effective size of terrestrial bird populations is about one-quarter of average breeding numbers. These results are discussed in relation to the long-term viability of the populations and the maintenance of genetic variation. The demographic features that enable the finch species to persist in the face of extreme environmental stochasticity are a high maximum life-span, a generally high adult survival under the stressful conditions of drought, a flexible period of maturity, and a high reproductive rate.Despite their relatively small effective population sizes and the likelihood of genetic impoverishment through random drift they remain genetically variable through gene flow, principally hybridization. This study highlights fluctuating (unstable) age structures as a methodological constraint on some of the theoretical calculations. An expanded demographic and population-genetic theory is needed to overcome this constraint.

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Enregistrement 21 de 208 - BA on CD July - December 1992
TI: Distribution and abundance of Emus Dromaius novaehollandiaein relation to the environment in the South Australian pastoral zone.
AU: POPLE-A; CAIRNS-S-C; GRIGG-G-C
SO: EMU 91(4): 222-229
PY: 1991
LA: English
AB: The distribution and abundance of Emus in the South Australian pastoral zone between 1978 and 1989 was determined by winter aerial surveys. The average number of Emu groups present ranged from a low of 0.02 km-2 in 1983 to 0.08 km-2 in 1980, 1981 and 1988. Between 1984 and 1989, average size of these groups was found to range from 2.22 to 4.55 Emus. Although the distribution varied from year to year, Emu density was generally highest in the northeast of the pastoral zone and lowest in the more arid northwest. The northeast of the pastoral zone is a relatively productive area, containing a mixture of land systems,particularly 'run-on' areas.The low open woodlands and tall shrublands of the northwest and south of the pastoral zone supported low densities of Emus.Areas of high Emus density were generally dominated by more intensive sheep grazing, by fans and/or hills, by red duplex soils, and by low shrublands of predominantly blue bush. Rainfall during summer and autumn was considered an important determinant of Emu density, with this period being important in terms of egg production.

Enregistrement 22 de 208 - BA on CD July - December 1992
TI: Variable mating system of a sedentary tropical duck: The white-cheeked pintail (Anasbahamensis bahamensis).
AU: SORENSON-L-G
SO: AUK 109(2): 277-292
PY: 1992
LA: English
AB: I studied the breeding chronology, courtship activities,pair-bond relationships, and parental-care behavior of a sedentary population of White-cheeked Pintails (Anas bahamensisbahmensis) in the Bahamas (West Indies) from 1985 to 1987. The timing and duration of breeding seasons was variable and associated with variation in the onset and amount of winter and spring rainfall. Year-around courtship, mate switches, courtship of brood females, and the formation of extrapair liaisons all reflected intense and continuous competition for quality mates. Most White-cheeked Pintails paired monogamously, but a low level of polygyny occurred regularly: each year, 4 to 9% of paired males had two mates during the breeding season, despite a strongly skewed sex ratio in favor of males (1.45:1). Polygynous males were particularly effective at guarding their mates during the breeding season, an important determinant of female breeding success. The term"male-quality polygyny" is proposed to characterize this form of polygyny.Both long-term pair bonds and mate changes between years were recorded: 10 of 23 marked pairs (43%) stayed together for two or more breeding seasons,while 13 pairs (57%) divorced. Mate retention in the second year was not related to breeding success in the first year. Only females provided parental care, but some males continued to escort and guard their mate for at least part of the brood-rearing period. Although highly variable, male attendance declined with both hatch date and duckling age. Some birds associated as pairs year around, and several pairs stayed together during the wing molt. The sedentary lifestyle in this subtropical climate and the potential for variable and extended breeding seasons appear to be the key ecological factors influencing the complex and variable mating system of this species.

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Enregistrement 24 de 208 - BA on CD July - December 1992
TI: Rock partridge (Alectoris graeca saxatilis) hunting mortality: Factors of variation and management prospects for hunted populations.
AU: BERNARD-LAURENT-A; LEONARD-P; REITZ-F
SO: GIBIER FAUNE SAUVAGE 9 (MARCH): 1-25
PY: 1992
LA: French
AB: Rock partridge (Alectoris graeca saxatilis) shooting,(numbers shot, numbers of hunters) was monitored daily for several consecutive autumns on 2 territories: Pierlas (Alpes-Maritimes) during 1983-90, and Ancelle (Hautes-Alpes)during 1985-90. A daily record of the numbers of partridges shot during a "regular"season shows a marked "opening-day" effect at Pierlas, due doth to decreasing hunting pressure and diminishing hunting success as the season progresses. This has not been observed in Ancelle where the seasonal trend in harvested birds seems to be linked to hunting success only. Year-to-year changes (Pierlas) and geographic variation(Pierlas/Ancelle) in bag numbers mainly seem to be a function of partridge density under moderate hunting pressure (a 3- to 4-hunters/hunting-day average on each territory). The mean proportions of crippled or killed, but unretrieved, birds represent respectively 19% and 26% of the total annual bags in Pierlas and Ancelle. Average percentages of birds shot are 18% in Pierlas and 28% in Ancelle. The effect of such hunting pressures could not be detected since spring population numbers remained stable over the whole period of study, in the two territories. From 1983 to 1990, the age structures of two populations inhabiting the Alpes-Maritimes department, an upland hybrid (Alectoris graeca saxatilis times Alectoris rufa rufa) population and a high-mountain rock partridge population, were studied in parallel using two methods: August counts with pointing dogs and age determination of 521 harvested partridges. Changes in the populations age ratios were appraised with the help of Logit models as a function of year, territory and method. Both methods yielded age ratios which, statistically, did not differ from one another. This implies that the hunting bag age ratio may be used as an indicator of population productivity, as readily as the young: adult ratio obtained by census with a dog. In contrast, the age ratio in the upland population was different from that of the high mountain population, in any one year. Therefore,different cynegetical management policies for hybrid and rock partridge populations would be justified. Year-to-year variations in age ratios were important, but they did not occur parallelly in both populations. The percentage of young in the rock partridge bag from the Alpes-Maritimes (a 1983-1990 mean of 60%) varied between 38 and 69% according to the year. Changes in this percentage are strongly correlated both with the amount of rainfall and the number of days with rain between June-July and June-August.These data showed the disastrous effect of rain during periods of nesting and chick rearing on the breeding success of the rock partridge. Percentages of young in the 1988-1990 rock partridge bag did not differ between the Alpes-Maritimes, Hautes-Alpes and Isere populations (respectively 63%, 53% and 61%). Harvest data indicated that the sex ratio of young was balanced, but that the sex ratio of adults favored males (58%), in the Alpes-Maritimes as well as in the Hautes-Alpes. These preliminary results show that hunting bags are a very interesting tool for studying population structures and trends in rock partridge, at the local level as well as at a wider scale.

Enregistrement 25 de 208 - BA on CD July - December 1992
TI: Intraspecific nest parasitism in Maned Ducks Chenonettajubata.
AU: BRIGGS-S-V
SO: EMU 91(4): 230-235
PY: 1991
LA: English
AB: Intraspecific nest parasitism was recorded in 31% of clutches containing gtoreq 5 eggs laid by Maned Ducks Chenonettajubata in nest boxes near Canberra (New South Wales, Australia).This is within the range for other cavity-nesting waterfowl.Frequency of parasitism was higher in 1987 (62% of 13 incubated clutches) than in 1988 (27% of 22 incubated clutches). Less rain fell during the laying period in 1987 (209 mm) than during the same period in 1988 (309 mm). Rain increases the growth of pasture grazed by Maned Ducks. The higher incidence of parasitism in the drier year suggests that individual Maned Ducks used nest parasitism as a salvage strategy, to enhance their chance of reproductive success when food was relatively scarce. Natural and experimental parasitism did not increase nest desertion, nor did they reduce clutch size of hosts, fat levels of incubating females or egg hatchability. Larger broods survived as well as smaller ones. Thus, nest parasitism in Maned Ducks may increase the reproductive success of the parasite, without reducing the reproductive success of the host. The sample sizes in this study were small and more data are required to confirm these tentative conclusions.

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Enregistrement 26 de 208 - BA on CD July - December 1992
TI: Reversal of breeding season by lowland birds at higher altitudes in western Cameroon.
AU: TYE-H
SO: IBIS 134(2): 154-163
PY: 1992
LA: English
AB: Evidence of breeding during the drying season is given for 31 species of lowland birds in montane and semi-montane areas in western Cameroon. At least 17 of these species are shown to breed in the wet season at lower altitudes in West Africa. This reversal of breeding season may be due to the unusually heavy rainfall and high humidities which cause temperatures to decrease more rapidly with altitude than on mountains with drier climates. Low temperatures and heavy rainfall during the wet season prevent almost all montane species from breeding then, and affect similarly the lowland birds whose ranges overlap with those of montane birds. Breeding seasons of some lowland species in Cameroon have previously been considered prolonged, but separation

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Enregistrement 35 de 208 - BA on CD January - June 1993
TI: The influence of group size and habitat on reproductive success in the superb fairy-wren Malurus cyaneus.
AU: NIAS-R-C; FORD-H-A
SO: EMU 92(4): 238-243
PY: 1992
LA: English
AB: The potential influence of rainfall, habitat quality and group size on breeding success in Superb Fairy-wrens was investigated in a study of 161 nesting attempts by 62 breeding units over five breeding seasons near Armidale, New South Wales (Australia).Breeding seasons started earlier, and lasted longer, in years with higher than average rainfall, and resulted in higher seasonal breeding success. Proportionately more four-egg clutches than three-egg clutches were laid in years of higher rainfall.Breeding success was correlated with habitat quality (bramble area per territory) and Superb Fairy-wrens on territories with larger areas of brambles made more nest attempts and fledged more offspring per season than did birds with smaller areas of brambles.Brambles appeared to have a cumulative effect on breeding success due to better protection from nest predators. No effect of helpers on breeding success per nest attempt was evident and groups with helpers hatched no more nestlings per egg laid and fledged no more offspring per nestling hatched than did pairs. Groups and pairs did not differ significantly in the number of nesting attempts made or the number of fledglings produced per seasonal though groups tended to re-nest sooner after successful nesting attempts than did pairs. It is suggested that the maintenance of cooperative breeding in Superb Fairy-wrens is not reliant on reproductive advantages arising from the presence of helpers at the nest but may be favoured by variation in territory quality.

Enregistrement 39 de 208 - BA on CD January - June 1993
TI: Tropical avian phenology in relation to abundance and exploitation of food resources.
AU: POULIN-B; LEFEBVRE-G; MCNEIL-R
SO: ECOLOGY 73(6): 2295-2309
PY: 1992
LA: English
AB: We studied avian breeding and molting activity in relation to rainfall, temporal fluctuations in food resource abundance,and food exploitation by birds, in four arid and semiarid tropical habitats in Venezuela. Twice a month we used mist nets to monitor changes in breeding and molting conditions of captured birds and forced them to regurgitate to determine their diet and feeding guild membership. Food abundance was assessed by measuring the flowering and fruiting seasonality of marked plants and by evaluating arthropod abundance with four different trapping methods. Flowering activity was limited largely to the wet season. Fleshy fruits, although produced year-round, were also more abundant in the rainy period. Arthropod abundance followed the same general pattern with numbers highest in the wet season and lowest in the dry season. Birds of all feeding guilds predominantly bred and molted during the wet season,synchronously with the highest abundance of most food resources.However,the diet analysis revealed a higher occurrence of arthropods coupled with a sharp decrease in the intake of vegetable matter during the birds' breeding season. Consequently, we suggest that arthropod abundance is a crucial factor governing the timing of breeding activities, even in species that normally include a high proportion of nectar and fruits in their diet. We also postulate that, in tropical habitats receiving gt 1500 mm of rain per year, breeding in nectarivores and frugivores in the dry season may be related to the lower reduction in arthropod numbers overtheless severe drought period.

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Enregistrement 42 de 208 - BA on CD January - June 1993
TI: Nest orientation and hatching success of black kites Milvus migrans in Spain.
AU: VINUELA-J; SUNYER-C
SO: IBIS 134(4): 340-345
PY: 1992
LA: English
AB: An analysis of the orientation of 182 nest sites of the Black Kite Milvus migrans in two areas in south and central Spain found that orientations toward the east were preferred. In southern Spain an analysis of the relationship between nest orientation and hatching success showed that success was lower among the nests located in non-preferred orientations, with some inter-annual variation. The tendency to orientate nests toward the east was greater among the early nesting pairs and the effect that the orientation had on the hatching success was also greater than in late nesting pairs. The data suggest that rainfall and prevailing winds were the main factors conditioning nest orientation.

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Enregistrement 46 de 208 - BA on CD July-December 1993
TI: Variations in bird abundance in tropical arid and semi-arid habitats.
AU: POULIN-B; LEFEBVRE-G; MCNEIL-R
SO: IBIS 135(4): 432-441
PY: 1993
LA: English
AB: Temporal variation in bird abundance was studied during a complete annual cycle in a thorn scrub, a thorn woodland and a deciduous forest in northeastern Venezuela. Abundance of site-attached and transient birds from different feeding guilds was determined by mist-netting at 2-week intervals. Diets were investigated by regurgitated samples. The overall avifauna was characterized by a low number of species but they were present all year despite showing strong seasonal fluctuations in abundance. The number of bird species and individuals peaked before and after the reproductive period. These high values probably were associated with movement of species feeding on plant food during the late dry season and the post-breeding dispersion of juveniles.Bird richness and abundance were lowest during the breeding season and in the early dry season when food abundance was low.Birds from different feeding guilds showed distinct patterns of seasonal abundance which tended to be similar at all three sites.Transient birds represented a large portion of the avifauna,particularly in nectarivores, frugivores and granivores during the dry season. We used a canonical correspondence analysis to demonstrate that bird abundance was correlated with breeding activity, rainfall seasonality and food abundance,with the influence of each parameter varying according to feeding guilds, spatial behaviour of individuals and habitats. Despite a great turnover in the occurrence of the diverse food types available, species composition remained strikingly constant during the year,with birds responding to seasonal changes primarily through a generalist feeding habit and a highly variable rate of transience.

Enregistrement 53 de 208 - BA on CD July-December 1993
TI: The breeding biology of the greywing francolin Francolinus africanus and its implications for hunting and management.
AU: LITTLE-R-M; CROWE-T-M
SO: SOUTH AFRICAN JOURNAL OF ZOOLOGY 28(1): 6-12
PY: 1993
LA: English
AB: We studied the breeding biology of the greywing biology of the greywing francolin Francolinus africanus on the Stormberg Plateau of the eastern Cape Province, South Africa during 1988-1991.Timing of breeding, nesting behaviour, clutch size, egg size, and clutch survival rates were recorded and compared with published and unpublished information from Natal, the eastern orange Free State and south-western Cape Province. The greywing breeds during the austral summer throughout its range, with peak laying activity during August-November. However, the nesting period is contracted in the south-western Cape, where it starts about one month earlier and ends three months earlier than in the eastern orange Free State and the eastern Cape, where laying was recorded from August to March. The greywing's breeding season is more consistently positively correlated with measures of environmental variation in the summer rainfall region than in the winter rainfall region. Flushed single birds were the best indicators of nesting sites. Clutches were incubated by hens only. Mean clutch size was 5,5 (SD = 1,2) and mean egg dimensions were 39,9 mm times 30,1 mm(SD = 1,9 and 0,9). Incubation period was 21,7 days (SD = 0,5),hatching success (the probability that eggs present at hatching time actually produced living young) was 90% and clutch survival rate (the probability that a clutch will survive 21,7 days of incubation) was 31%. Hunting seasons for the greywing should be from 15 April to 31 July in the summer rainfall region and from 1 April to 30 June in the winter rainfall region. Veld burning should cease at the end of August throughout the greywing's range so that disturbance of breeding birds is minimized.

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Enregistrement 57 de 208 - BA on CD January-June 1994
TI: Condition indices for wader chicks derived from body-weight and bill-length.
AU: Beintema-A-J
SO: Bird Study 41(1): 68-75
PY: 1994
LA: English
AB: Growth in nidifugeous wader chicks depends on food availability, and growth rates may be considerably reduced when food is in short supply. Bill-length and body-weight respond differently to reduced growth rates, and to recovery after a period of reduced growth. A condition index (CI) can therefore be derived from the relationship between bill-length and body-weight: CI =observed weight/expected weight for the observed bill-length.Standardized weights for observed bill-lengths are presented for Lapwing Vanellus vanellus, Black-tailed Godwit Limosa limosa, Redshank Tringa totanus, and Oystercatcher Haematopus ostralegus.Annual variations in condition indices were similar across species and in the case of Lapwing were correlated with total rainfall in May. Similar fluctuations in chick survival were also correlated with rainfall in May suggesting a relationship between condition index and fledging success.

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Enregistrement 65 de 208 - BA on CD January-June 1994
TI: Comparison of survival rates between populations of the White Stork Ciconia ciconia in Central Europe.
AU: Kanyamibwa-S; Bairlein-F; Schierer-A
SO: Ornis Scandinavica 24(4): 297-302
PY: 1993
LA: English
AB: Many studies have shown that the decline in numbers of the White Stork populations has been stronger in the western part of its European breeding range than in the eastern. Using recent developments of capture-recapture methods to estimate survival rates, including in particular a study, of relationships with environmental variables and a comparison between populations. This paper examines changes in survival rates of some European populations of the White Stork, Survival rates of all populations wintering in the Sahelian zone were positively linked to the amount of rainfall in their wintering area. However, the survival rate of the population wintering in East Africa was not significantly related to the amount of rainfall there. No significant effect of the amount of rainfall in the breeding area on survival rate was observed. Differences in survival rates were observed within western populations and between the western and eastern populations. An effect of age was only significant in the Alsacian population. No significant difference in survival rates was found between male and female storks.

Enregistrement 66 de 208 - BA on CD January-June 1994
TI: Spatial and temporal abundance patterns of ruddy quail-doves (Geotrygon montana) near Manaus, Brazil.
AU: Stouffer-P-C; Bierregaard-R-O-Jr
SO: Condor 95(4): 896-903
PY: 1993
LA: English
AB: We analyzed patterns of abundance of Ruddy Quail-Doves(Geotrygon montana) based on 12 years of mist-net data (457 captures) from terra firme forest near Manaus in central Amazonian Brazil.Unlike most understorey birds at the study site, G. montana varied greatly in abundance. Quail-doves disappeared for months and then reappeared, usually during the wet season. In some months they became one of the most frequently netted birds. Quail-doves avoided isolated forest fragments of one ha, although abundance did not differ among fragments of 10 ha, 100 ha, and continuous forest. Peak abundance varied among years, as did the timing of peak abundance. In general, the annual pattern of quail-dove abundance was correlated with the annual rainfall pattern.Considering all 12 years of data,however, quail-dove abundance during a given three-month period was not correlated with rainfall during that period, but with rainfall in the same period in the previous year. No quail-doves were recaptured more than a few weeks apart; thus individual birds did not return to the same site from year to year. Since quail-doves feed mainly on fallen fruit, these results suggest that they may range over wide areas to exploit regional differences in fruit production.

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Enregistrement 69 de 208 - BA on CD January-June 1994
TI: Whitethroat Sylvia communis population studies during 1981-91 at a breeding site on the Lincolnshire coast.
AU: Boddy-M
SO: Ringing & Migration 14(2): 73-83
PY: 1993
LA: English
AB: More than 300 Whitethroats, including almost 500 adults,were ringed during 1981-91 at Crook Bank, on the Saltfleetby-Theddlethorpe Dunes N.N.R.Adult captures peaked in 1982 and 1987-89, with a population 'crash' in 1984. Annual adult survival rates, estimated from between-year recaptures,varied from 10.8% in 1983-84 to 67.7% in 1988-89, with a mean of 55.1% during 1984-85 to 1988-89, when the population was increasing. The annual ratios by juveniles:adults captured were positively correlated with April-August rainfall. Juvenile return rates varied from 2.0% in 1991 to 10.3% in 1987, with an overall mean of 5.7%. Differences were found in return rates in the year after ringing for birds ringed either as juveniles or as adults,with significantly more males than females returning. However,there were no differences for Whitethroats returning for their second or later breeding season at Crook Bank. Estimates from ringing data suggested that there were 23-37 pairs breeding on the 8.5 ha study area in five of the years, dropping to 11 pairs in 1984-85,but peaking at 46 pairs in 1989. A mapping survey in 1987-91 recorded densities of 27-34 territories/10 ha in three years,also with a peak in 1989 (of 45 territories/10 ha). Whitethroat breeding density at Crook Bank thus appears to have been higher than recorded elsewhere in Britain,even prior to the 1968-69' crash'.

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Enregistrement 70 de 208 - BA on CD January-June 1994
TI: Breeding biology of Curlew Numenius arquata at a breeding site in the southern Upper Rhine valley.
AU: Boschert-M; Rupp-J
SO: Vogelwelt 114(5): 199-221
PY: 1993
LA: German
AB: The breeding biology of the Curlew and the effects of disturbance on its breeding success were studied from 1977 to 1992. The mean size of 106 mapped Curlew territories was 16.2 +- 8.7 ha.The first birds usually arrived in the breeding area between February 21st and March 8th (median: March 1st). Reproductive success varied from 1.62 fledglings in 1980 to 0.0 in 1989 with an average of 0,315 fledglings/pair and year. However, in years with above-average rainfall the breeding success was generally highest. Possible reasons are discussed for the constantly increasing number of breeding pairs and the variation in reproductive success. The preferred nesting habitats of the Curlew were meadows where 125 out of 131 nests were found; only five nests were on arable farmland and one on fallow field. From 1986 to 1989,average egg laying interval was 1,4 days, and mean incubation time 30 days. The time from hatching to fledging usually took 35 to 37 days. During these years, the median of first egg laying was on 13th April. Depending on the atmospheric conditions in the time span under investigation,the first egg was found on 21st March and the last on 5th May. On average a clutch contained 3,80 eggs, replacement clutches being significantly smaller (3,91 to 3,54). 32 (24,4%) clutches out of 131 hatches successfully,39 (29.8%) nests were lost due to human disturbance. Disturbances were caused by agriculture, leisure time activities, military use, and by natural factors such as predators and climatic influences. These exerted direct influences on the breeding activities as well as indirect influences on the food and water supply of the birds.

Enregistrement 76 de 208 - BA on CD 7/94-12/94
TI: Composition and phenology of an avian community in the Rio Grande plain of Texas.
AU: Vega-J-H; Rappole-J-H
SO: Wilson Bulletin 106(2): 366-380
PY: 1994
LA: English
AB: In October-November 1988 and from middle February 1989 through July 1990 we used mist nets to examine the composition and seasonal occurrence of the avifauna in a dry thorn forest community of the north central portion of the Tamaulipan Biotic Province in Texas. Fifty-nine species and 1269 individuals were captured. Many species usually considered to reside permanently in the area were not present from November to March;species considered to be winter residents were caught only in low numbers. During the study, rainfall was 55% and 47% of the annual average. We suggest that the drought conditions were associated with reduction of food resources, forcing birds to abandon the area during the winter of 1989-1990 and to return to breed in low numbers in the spring of 1990. Lack of shrub foliage in spring 1990 may have caused a lower rate of capture for most species in that year because it resulted in the reduction of food resources and shelter.

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Enregistrement 85 de 208 - BA on CD 1/95-6/95
TI: Breeding Season and Clutch Size of the Noisy Pitta Pitta versicolor in Tropical and Subtropical Australia.
AU: Woodall-P-F
SO: Emu 94(4): 273-277
PY: 1994
LA: English
AB: Data on the breeding season and clutch size of the Noisy Pitta Pitta versicolor were obtained from the literature, RAOU's Nest Record Scheme and egg collections in Australia and overseas.Overall most egg laying occurs between October and January but on Cape York Peninsula it is significantly later(November-February). This is likely to be associated with the very seasonal rainfall on Cape York compared with other regions. Clutches of three and four were most common. That clutches were significantly smaller in tropical than subtropical regions may be associated with the scarcity of food resources in humid tropical rain forest.

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Enregistrement 86 de 208 - BA on CD 1/95-6/95
TI: Habitat use by geese wintering in Southern Texas.
AU: Ballard-B-M; Tacha-T-C
SO: Southwestern Naturalist 40(1): 68-75
PY: 1995
LA: English
AB: Habitat use and activities of wintering Canada geese (Branta canadensis), lesser snow geese (Chen c. caerulescens), and greater white-fronted geese (Anser albifrons frontinalis) were studied in Refugio County, Texas during October through February 1990-1991 and 1991-1992. Contrasting rainfall during the two study seasons appeared to affect food availability, habitat use, and number of geese observed. Nearly 7 times more geese were recorded during the wet winter of 1991-1992 than during the dry winter of 1990-1991. Geese selectively used (P lt 0.10) improved pasture during October through February 1990-1991; although geese exclusively used disced sorghum fields (69% of study area) until late November 1990,they shifted to improved pasture (3% of study area) during December through February. Sprouting vegetation was more available in disced sorghum fields during 1991-1992, when geese selectively used (P lt 0.10) disced sorghum during both fall and winter. Disced sorghum was the most intensively used habitat during both winters. Percent of time spent feeding by geese did not differ (P gt 0.10) among habitats; geese spent gt 60% of their diurnal time foraging in disced sorghum fields.

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Enregistrement 87 de 208 - BA on CD 1/95-6/95
TI: Winter fattening strategies of two passerine species: Environmental and social influences.
AU: Pilastro-A; Bertorelle-G; Marin-G
SO: Journal of Avian Biology 26(1): 25-32
PY: 1995
LA: English
AB: We studied the fattening strategies of two insectivorous passerines, the Robin Erithacus rubecula and the Wren Troglodytes troglodytes, during their wintering stage in a study area of the eastern Po valley (Northern Italy). We analysed the relationship between some environmental (temperature,photoperiod,rainfall) and social factors (density of migrant competitors,territoriality, home range size) on the one hand, and levels of fat reserve on the other. Although average body fat depots differed between the two species, both increased their daily fat stores as the photoperiod shortened with the progress of winter. The amount of fat accumulated by day was more than that required for overnight

consumption. Both species also responded to short-term variations in weather conditions: fat depots were inversely related to the maximum temperature on the day of capture. The use of space and the social structure of the wintering populations seem to affect fattening strategies fat reserves of resident Robins were negatively related to the density of conspecific migrants, early in the season. The same relationship was not observed for Wrens, which were dispersed in extensively overlapping home-ranges. In this species, the home-range size was positively, and fat reserves negatively,correlated with the body size of the bird.

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Enregistrement 93 de 208 - BA on CD 1/95-6/95
TI: Wading bird use of Lake Okeechobee relative to fluctuating water levels.
AU: David-P-G
SO: Wilson Bulletin 106(4): 719-732
PY: 1994
LA: English
AB: We surveyed the Lake Okeechobee littoral zone by helicopter between 1977 and 1988 to determine wading bird abundance relative to lake water levels. More birds foraged when nesting season (January-July) water levels were below 4.4 m (mean sea level)compared to higher lake levels. Wading birds were also more abundant when nesting season water levels declined by at least 30 cm over the previous two-month period in comparison to more gradual declines or increases in lake levels. Lake levels and change in lake levels over the previous two-month period explained 60% of variation in wading bird abundance. Nesting effort did not appear to be affected by changes in water levels.However,fewer nesting attempts were observed when lake levels were above 4.9 m or below 3.9 m. Peak numbers of nesting wading birds occurred in April and May when lake levels were between 3.9 m and 4.4 m.In general, nesting effort declined during the survey period from over 6000 nests in 1977 and 1978 to between 725 and 1812 nests during the last five years of the study. One possible explanation for this decline is the impact of higher water levels due to increased rainfall and a change in the Lake Okeechobee regulation schedule. Higher water levels reduced the foraging area available to nesting birds and may have contributed to the deterioration of nesting sites comprised of willows.

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Enregistrement 95 de 208 - BA on CD 1/95-6/95
TI: Seasonal variation of clutch size in the European blackbird Turdus merula: A new ultimate explantation.
AU: Ludvig-E; Vanicsek-L; Torok-J; Csorgo-T
SO: Journal of Animal Ecology 64(1): 85-94
PY: 1995
LA: English
AB: 1. Seasonal patterns of clutch size, partial hatching,fledging and breeding losses were analysed in an urban blackbird population in Budapest during four successive breeding seasons from 1986 to 1989. 2. Average clutch size was maximal mid-season, but timing of the clutch size peak varied from year to year according to the beginning of the breeding season. 3. Contrary to expectation, partial losses both in egg and nestling stages were greatest mid-season, and seasonal patterns of successes corresponded well with the pattern of precipitation preceding egg laying. The amount of rainfall proved to be a good indicator of earthworm abundance, the main food of urban blackbirds. 4. Seasonal patterns of hatching success proved to be quite different between four and five-egg clutches, while fledging success did not differ significantly. The pattern of breeding success of females laying five eggs followed precipitation closer and earlier, while females laying only four eggs lost eggs or nestlings only when the amount of precipitation fell below a threshold level.Productivity of clutch size four reached that of clutch size five at the beginning and at the end of the season but not in the middle. 5. Our results suggest a new ultimate explanation for the seasonal clutch size maximum in this species. Although the key factor seems to be changes in food supply during egg formation, it affects clutch size indirectly by changing the trade-off between fertility and hatching success throughout the season.

Enregistrement 97 de 208 - BA on CD 1/95-6/95
TI: The influence of synchronous breeding, natal tree position and rainfall on egret nesting success.
AU: Baxter-G-S
SO: Colonial Waterbirds 17(2): 120-129
PY: 1994
LA: English
AB: Factors commonly thought to influence the breeding success of colonial egrets were measured over 4 years. No significant difference in breeding success occurred between years, and the position of the natal tree in the colony did not affect breeding success. Evidence of synchronous breeding was found, but only Intermediate Egrets had a higher fledging success for nests that fledged young during the peak nesting month. The amount of rainfall in the five months prior to the onset of nesting was positively correlated with the fledging success of Intermediate Egrets,suggesting the importance of food availability for this species. Nesting success found in New South Wales was compared to that reported elsewhere, and found to be less than that calculated to maintain stable populations. The problem of comparing fledging success between different studies with different criteria for determining fledging is discussed.

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Enregistrement 103 de 208 - BA on CD 1/95-6/95
TI: Factors involved in the distribution of forest birds in the Iberian Peninsula.
AU: Telleria-J-L; Santos-T
SO: Bird Study 41(3): 161-169
PY: 1994
LA: English
AB: The relationships between a series of environmental variables and the abundance of individual species of forest birds were examined in 58 large woodlands along a band crossing the Iberian Peninsula from north to south. The variables were mean annual rainfall, mean annual temperature, density of trees lt 20 cm in diameter,density of trees gt 30 cm in diameter, floristic composition (conifer or broadleaved trees) and geographical situation(distance from northern extreme of study band). The variable most highly correlated with bird density was mean annual rainfall (40% of the species had significant partial correlations with this parameter). The northern species (Chiffchaff, Goldcrest, Robin,Song Thrush, Bullfinch, etc.) generally correlated positively with mean annual rainfall, while the Mediterranean species (Sardinian Warbler, Bonelli's Warbler, Black-eared Wheatear, Rock Sparrow,Spotless Starling, Azure-winged Magpie, etc.) exhibited an inverse pattern. Mean annual temperature (36%) was also closely associated with bird distribution, but did not show clear tendencies according to biogeographic groups. Floristic composition (26%) was a strong determinant of the abundance of species distributed throughout the whole Iberian Peninsula and geographical situation(22%)largely determined the distribution of the northern and Mediterranean species. Finally, density of trees lt 20 cm in diameter (20%) and gt 30 cm in diameter (14%) generally showed a negative association with the majority of the species, particularly the Mediterranean species.

## Section 5

Mots-clés: bird and (climate or cold or heat or weather)

**Section 5**

Mots-clés: bird and (climate or cold or heat or weather)

Enregistrement 1 de 28 - BA on CD January - June 1992
TI: Population dynamics of common sandpipers Actitis hypoleucos breeding along an upland river system.
AU: HOLLAND-P-K; YALDEN-D-W
SO: BIRD STUDY 38(3): 151-159
PY: 1991
LA: English
AB: The survival rate of a colour-ringed Common Sandpiper population followed from 1977 to 1989 averaged 0.79 per year, but fluctuated in response to April weather. Late April snowstorms in 1981 and 1989 reduced the apparent survival rates, from the previous years, to 0.39 and 0.50, respectively, and the breeding populations fell from 21 to 14 and from 20 to 12 pairs. Recovery from the reduced population size in 1981 proceeded slowly, at increments of only 1 or 2 pairs per year. There appears to be a low rate of recruitment in this population, sufficient to balance the low mortality rat in average years but inadequate to compensate for the extreme mortality produced by extreme weather.

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Enregistrement 2 de 28 - BA on CD January - June 1993
TI: Life-history theory in the nonbreeding period: Trade-offs in avian fat reserves?
AU: ROGERS-C-M; SMITH-J-N-M
SO: ECOLOGY 74(2): 419-426
PY: 1993
LA: English
AB: We tested the hypothesis of optimal winter fat storage in birds. The hypothesis predicts that when the survivorship benefits (fasting capacity) but not the survivorship costs (higher cost of flight, lowered agility, increased exposure to predators) of fat are eliminated by predictable resources (e.g., tree- and shurb-born food), species will be leaner than species exploiting unpredictable resources (e.g., ground-borne food subject to sudden covering by snow). The predicted pattern was found in an early study of avian communities in central North America, where snowfall is frequent. Here we tested the predictions of the hypothesis that (1) when ground- and tree-feeding guilds are compared between geographic regions of harsh and mild winter climate, only ground-feeders will have relatively high fat reserves, resulting in a significant guild times climate interaction term in a two-way analysis of variance, and (2) ground- and tree-foraging guilds will both show low fat reserves in a mild winter environment. To test these predictions, visible subcutaneous fat class was measured in both guilds in Wisconsin and Michigan (USA) (harsh winter environments) and southwestern British Columbia (Canada), northwestern Washington, and Tennessee (mild winter environments). Both predictions were supported. We suggest that small birds wintering in North America approach local optima in energy storage strategy and winter survivorship. The energy storage strategy thus appears to be a major life-history trait in the nonbreeding period. The trade-off between the costs and benefits of winter fat has two potential implications for understanding population limitation. First, trade-offs that reduce reserves can lead to lower survival in severe winter weather than would occur at maximum fat levels. Second, our study suggests that individual birds are sensitive to, and can control, both predation and starvation risks. Recent theory of population limitation indicates that as food abundance declines, birds feed to avoid starvation, but at the expense of increased mortality from predation. Together these studies suggest that populations are limited by interacting (predation, food supply) instead of single (food supply) factors. Study of trade-offs used by individuals to maximize survival can provide unique perspectives on population limitation.

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Enregistrement 3 de 28 - BA on CD January - June 1993
TI: Energetics of incubation in free-living orange-breasted sunbirds in South Africa.
AU: WILLIAMS-J-B
SO: CONDOR 95(1): 115-126
PY: 1993
LA: English
AB: Using the single-sample variant of the doubly labeled water method (DLW), I quantified the field metabolic rate (FMR) and water flux of female Orange-breasted Sunbirds (Nectarinia violacea) during the incubation period. Concurrent to DLW measurements, I examined their incubation behavior and microclimate. These are the first measurements of FMR and water flux for a nectarivorous bird during incubation and the first for an Old World sunbird species. For 10 incubating female Orange-breasted Sunbirds (mean mass = 9.5 g), CO-2 production averaged 13.3 ml/hr, which corresponds to a FMR of 66.2 kJ/day, one of the highest values reported for a bird of its size. Among female passerines, the ratio of FMR to basal metabolic rate (BMR) is typically near 3.0, but for female Orange-breasted Sunbirds, the ratio of FMR/BMR is near 6.5. This suggests that during incubation females are working near their maximum capacity. Females generally lost mass during experimental periods; birds with high mass loss have elevated

FMRs. Females consumed 14.7 ml H-2O/ day, slightly more than twice that expected based on body size. Attentiveness of females averaged 39.4 min/hr, while incubation bouts and inattentive periods averaged 11.9 min and 6.7 min, respectively. Females stayed away from their nests for long periods in the late afternoon, especially during inclement weather. Egg temperature averaged 34.7 degree C for all experimental periods combined. When females were absent for extended periods, eggs cooled to ambient temperatures, often near 10 degree C. This is a temperature well below the physiological zero temperature. The FMR of females increased significantly with decreasing operative temperature. One observation suggested that when in negative energy balance, females lower their body temperature while on the nest at night. These are the first data suggesting that sunbirds use hypothermia as an energy conservation mechanism in the field.

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Enregistrement 4 de 28 - BA on CD January - June 1993
TI: Do free-ranging common nighthawks enter torpor?
AU: FIRMAN-M-C; BRIGHAM-R-M; BARCLAY-R-M-R
SO: CONDOR 95(1): 157-162
PY: 1993
LA: English
AB: There is conflicting evidence as to whether Common Nighthawks (Chordeiles minor) can enter torpor. The purpose of this study was to determine if torpor is used by free-ranging individuals under natural conditions. Nighthawks were monitored from June until August 1990 near Okanagan Falls, British Columbia, using temperature sensitive radiotransmitters. Record-high precipitation in 1990 apparently stressed the birds energetically by preventing foraging during poor weather and by reducing the abundance of the main prey item, caddisflies (Trichoptera). Energetic stress was manifested in several ways. Compared to previous years, nighthawks foraged diurnally, changed foraging habitats resulting in a broadening of the diet, and increased the duration of foraging periods. Furthermore two tagged birds died, apparently of starvation. Despite indications that 1990 was a stressful year, the temperature of nighthawks never fell below homeothermic levels. If nighthawks are physiologically capable of entering torpor, an energetically stressful year would be expected to induce it. Our observations support the idea that they are not physiologically adapted to enter torpor as a means of energy conservation.

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Enregistrement 5 de 28 - BA on CD January - June 1993
TI: Utilization of different foraging habitats by the purple sandpiper Calidris maritima on a Spitsbergen beach.
AU: LEINAAS-H-P; AMBROSE-W-G-JR
SO: FAUNA NORVEGICA SERIES C CINCLUS 15(2): 85-91
PY: 1992
LA: English
AB: The foraging activity of the Purple Sandpiper, with respect to its utilization of habitat and prey, was studied on the shore of a small bay close to the village by Ny ANG lesund on West Spitsbergen (Norway) at low tides during a 10 day period. Based on sediment type and prey species, the shore could be subdivided into three parts: a muddy beach with rich infauna, a cobble/sediment beach inhabited by high densities of both amphipods and Collembola (springtails), and a cobble/rock beach with a high density of amphipods only. All parts of the beach and all prey types were utilized, with no clear preference for any of them. However, water level and weather affected the availability of prey differently. The infauna on the mudflat and the amphipods on the cobble beach were preyed upon if the water level at low tide (infauna) or waves (amphipods), did not prevent the birds probing activities, and Collembola was taken on calm overcast days when they settled down to graze algae upon stones on the beach.

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Enregistrement 6 de 28 - BA on CD January - June 1993
TI: Applicability of the pied flycatcher's Ficedula hypoleuca clutch size and breeding success as an environmental indicator.
AU: THINGSTAD-P-G
SO: FAUNA NORVEGICA SERIES C CINCLUS 15(2): 67-84
PY: 1992
LA: English
AB: In connection with environmental monitoring work the clutch size and breeding success of the Pied Flycatchers Ficedula hypoleuca might be a useful indicator of the quality of different habitats. By using the material from 11 line transects of nestboxes located in five different areas in Central Norway that have been collected during the period 1986-91 (92), I try to evaluate the suitability of such reproductive data. Using the data from a total of 30 study plots from different parts of Fennoscandia, the geographic position explained a large proportion of the clutch size variation. The altitude variable alone explained about two thirds of the overall variation in clutch size. However, the altitude variable may mask some of the effects due to different qualities of the habitat, because there is a significant correlation ($r = 0.58$) between the variability of the habitat and the latitude variable in this material. Therefore the variation in clutch size

and breeding success might still primarily be an adjustment to the habitat quality, besides climatic conditions. Between-year variability in climatic conditions is particularly important in marginal habitats. In fact, two thirds of the local variation in clutch size in such a marginal habitat could be accounted for the mean air temperature for the last 5 days in May. The resource-related component need not be directly connected to differences in vegetation cover, but may just as well depend on differential access to suitable food. Also several other factors may influence the reproductive success of the Pied Flycatcher. Some of these factors may only be reflected by the densities of the breeding populations. Indices based on clutch/brood size and density of the breeding population may therefore yield useful information about the habitat quality. Whatsoever, to obtain representative reproductive data from an area, it is necessary to cover a long time-series of observations and include more than one line transect of nestboxes.

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Enregistrement 7 de 28 - BA on CD January - June 1993
TI: Ventilatory oxygen extraction in relation to ambient temperature in four antarctic seabirds.
AU: MORGAN-K-R; CHAPPELL-M-A; BUCHER-T-L
SO: PHYSIOLOGICAL ZOOLOGY 65(6): 1092-1113
PY: 1992
LA: English
AB: We tested the hypothesis that at low ambient temperatures (T-a) birds reduce ventilatory heat loss by increasing ventilatory oxygen extraction (E0-2). We examined relationships between T-a, body temperature, oxygen consumption ( ovrhdot Vo-2), carbon dioxide production ( ovrhdot Vco-2), evaporative water loss ( ovrhdot mH-2O), respiratory frequency, tidal volume (V-T), minute volume, and Eo-2 in four species of Antarctic marine birds ranging in body mass from 33-4,915 g. The factorial increases in ovrhdot Vo-2 ranged from 1.8 to 5.2 between the lower critical temperature (T-lc; 10 degree -30 degree C, depending on species) and a T-a of -23 degree C. The respiratory exchange ratio ( ovrhdot Vco-2/ ovrhdot Vo-2) did not change with T-a. The ovrhdot mH-2O was independent of T-a between 10 degree and 30 degree C in kelp gulls and giant petrels but was positively correlated with T-a between 10 degree and 35 degree C in Wilson's storm-petrels and between 10 degree and 30 degree C in South Polar skuas. Thermal conductance (C) was minimal at T-a's of 10 degree or 20 degree C depending on the species and was constant and low at T-a's below this minimum. In all four species C increased significantly at high T-a's. In storm-petrels, gulls, and skuas, the increase in ovrhdot Vo-2 resulting from a change in T-a from T-lc down to -23 degree C was accommodated mainly by increasing V-T. In contrast, in giant petrels the increase in ovrhdot Vo-2 resulting from a change in T-a from T-lc down to -23 degree C was accommodated mainly by increasing Eo-2 and the increase in V-T was of secondary importance. Our data suggest that increasing Eo-2 as a means of reducing ventilatory heat loss is not a general phenomenon in cold-adapted birds.

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Enregistrement 8 de 28 - BA on CD January - June 1993
TI: Energetics of mound-tending behaviour in the malleefowl, Leipoa ocellata (Megapodiidae).
AU: WEATHERS-W-W; SEYMOUR-R-S; BAUDINETTE-R-V
SO: ANIMAL BEHAVIOUR 45(2): 333-341
PY: 1993
LA: English
AB: Malleefowl artificially incubate their eggs in mounds containing decaying vegetation. The effort involved in behaviourally regulating mound temperature seems prodigious. The energy cost of regulating mound temperature was estimated indirectly, using time to onset of an evaporative heat loss behaviour (gular flutter) to establish equivalent work rates for malleefowl running on a treadmill in the laboratory, and for malleefowl tending mounds in the field. Equivalency between laboratory and field thermal environments was established based on operative temperature and water vapour pressure. Mound work was equivalent to running at 0.57 m/s. The power input of birds running this speed was 12.9 W/kg, which is 3.1 times the resting metabolic rate, or 3.8 times the basal metabolic rate. In March, malleefowl tend their mounds for an average of 4.8-5.3 h/day and incur a daily energy cost of incubation about twice that of other birds. At other times of the year malleefowl devote little effort to incubation. Overall, the total work to construct a mound and tend it during the 5- to 6-month incubation period exceeds the total energy cost of incubation in typical birds by perhaps two-fold. The benefits that compensate the malleefowl's higher total incubation cost include higher fecundity and emancipation from post-hatching parental care.

Enregistrement 9 de 28 - BA on CD January - June 1993
TI: Aspects of the breeding biology of Antarctic petrels and Southern Fulmars in the Rauer Group, East Antarctica.
AU: NORMAN-F-I; WHITEHEAD-M-D; WARD-S-J; ARNOULD-J-P-Y
SO: EMU 92(4): 193-206
PY: 1992
LA: English
AB: Breeding phenology, success and nest attendance of Antarctic Petrels Thalassoica antarctica and Southern Fulmars Fulmarus glacialoides at the Rauer Group (68 degree 51'S, 77 degree 50'E), East Antarctica, are discussed. Most data were collected on Hop Island (68 degree 50'S, 77 degree 42'E) in January and February 1988, and from December 1988 to March 1989. Observations extended from the late stages of incubation to post-guard or fledging periods. Some annual breeding indices collected from 1983 onwards at census sites are compared with meteorological data and the extent of fast ice for the nearby Davis Station (68 degree 35'S, 77 degree 58'E). Both species had a restricted hatching period, reflecting a brief and synchronised egg-laying period, typical of other southern fulmarine petrels. Antarctic Petrel chicks hatched from 4 January (1989), and c. 90% appeared by 16 January (both years). Southern Fulmar hatching began on 21 January (1988) and almost all chicks appeared by 6 February (both years). Adult attendance at nests declined with increasing chick age. For Antarctic Petrels, this was most marked at about 11 days; no chicks had continuously attendant adults after 24 days, although adults returned to feed them. Incubation shifts in Southern Fulmars were longer than shifts following hatching and the post-guard period started, on average, 13 days after hatching. Egg and chick losses varied between years and sites. The South Polar Skua Catharacta maccormicki was apparently involved in the majority of losses. Nest sites of both species resemble those elsewhere: Southern Fulmars may require steeper sites, allowing a fall away from colonies. Antarctic Petrels are less affected by accumulation of snow or ice and shelter from katabatic winds may be important. Although weather may modify breeding success locally, annual success most depend on the ability of parents to produce eggs and feed chicks: this may be moderated by the extent and persistence of pack ice.

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Enregistrement 10 de 28 - BA on CD January - June 1993
TI: Development of autonomic and behavioral thermoregulation in turkeys (Meleagris gallopavo).
AU: MODREY-P; NICHELMANN-M
SO: JOURNAL OF THERMAL BIOLOGY 17(6): 287-292
PY: 1992
LA: English
AB: Heat production (HP) and body temperature (T-b) measurements were conducted at ambient temperatures (T-a) between 10 and 40 degree C. In addition preference temperatures (PT) were determined in a temperature channel and T-b was measured at preferred T-a. The influence of age on t-b at constant, as well as the Pt, was proved. Increasing age was accompanied by an elevation of T-b whereas HP remained constant in the mid-range of T-a. The lower T-b in the first days of life is suggested to result from a lower thermoregulatory set point during the postnatal period. The PT were different for the observed types of behaviour. The PT at rest was higher than the PT during locomotion, food intake and drinking.

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Enregistrement 11 de 28 - BA on CD July - December 1992
TI: The breeding biology of an endangered Hawaiian honeycreeper, the Laysan Finch.
AU: MORIN-M-P
SO: CONDOR 94(3): 646-667
PY: 1992
LA: English
AB: From 1986 to 1988 the breeding biology of an endangered Hawaiian honeycreeper, the Laysan Finch (Telespiza cantans), was studied on the coral island of Laysan in the Hawaiian Archipelago (Hawaii, USA). Laysan Finches are apparently monogamous. Pairs defend mates and nest sites, but not feeding territories. Only the female constructs the nest and incubates. The breeding season is prolonged, but there is yearly variation in onset. Pairs can have more than one clutch per year. The average clutch size is 3.19 eggs. The modal incubation period was 16 days. One-third of all eggs laid disappeared, probably due to intraspecific predation. Eggs hatched asynchronously in the order laid. Chicks fledged at 22-26 days of age, and were dependent for at least three additional weeks. Weather affected reproductive success. A severe storm in 1986 caused almost total mortality of eggs and chicks, regardless of clutch size. Later in the same year, fledglings per nest increased as clutch size increased. During the dry 1987 field season, the onset of breeding was delayed, mean egg weight decreased, the number of malformed eggs increased, and clutches tended to be smaller. Although in good years four-egg clutches produced more fledglings per nest than small clutches, in poorer years three-egg clutches produced at least as many or more fledglings per nest than larger clutches. In this fluctuating environment, a modal clutch size of three apparently has been selected for, possibly because it yields the highest average number of offspring per nest during both good and poor years.

Enregistrement 12 de 28 - BA on CD July - December 1992
TI: Male incubation in Barn Swallows: The influence of nest temperature and sexual selection.
AU: SMITH-H-G; MONTGOMERIE-R
SO: CONDOR 94(3): 750-759
PY: 1992
LA: English
AB: Male Barn Swallows (Hirundo rustica) help their mates to incubate in North America but not in Europe. In this study, conducted at four colonies in southeastern Canada, males contributed an average of 9% of the total amount of incubation during daylight hours. The total percent of time that eggs were incubated (nest attentiveness) by both sexes declined through the day, largely due to a response to increasing temperature. The nest attentiveness of both males and females was negatively correlated with nest temperature (i.e., air temperature near the nest) but not consistently with weather. In general a male seemed to incubate more when his help was needed-early in the day when the female had to recover energy lost during nighttime incubation and late in the incubation period when females should have been most stressed energetically. We found no evidence that male nest attentiveness was affected by their expected opportunity to obtain extra-pair copulations-neither differences in male attractiveness due to tail-length manipulation (shortening or elongation) nor changes in the operational sex ratio affected the male's relative share of incubation duties. Using DNA fingerprinting, we also found that the male contribution was not affected by his paternity in the brood. Since colony size and the mating system of this species appear to be similar in both North America and Europe, the intensity of sexual selection should not differ substantially between these populations. Instead we suggest that nest temperature or feeding conditions are the most likely factors influencing the differences in male incubation behavior between European and North American populations.

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Enregistrement 13 de 28 - BA on CD July - December 1992
TI: Seasonal population dynamics of dark-eyed juncos from western Oregon.
AU: SWANSON-D-L
SO: JOURNAL OF FIELD ORNITHOLOGY 63(3): 268-275
PY: 1992
LA: English
AB: Dark-eyed Juncos (Junco hyemalis) were captured in summer and winter in 1987-1990 near Corvallis, Benton Co., Oregon, and U.S. Fish and Wildlife Bird Banding Laboratory records (BBL) for the Willamette Valley of western Oregon were examined to assess seasonal population dynamics of these birds. Banding recoveries indicate that at least 2.2% of these juncos breed on or near wintering grounds. Winter juncos of both sexes had significantly longer wings than summer juncos and winter males had significantly longer tarsi, suggesting some immigration of larger birds or, conversely, some emigration of smaller birds. These data indicate that breeding and wintering populations of Willamette Valley juncos show a degree of overlap characteristic of a pattern of partial migration. The male/female sex ratio was 2.8:1 in winter and consisted of a significantly greater proportion of males than in the breeding population. The percentage of females in winter populations of these juncos, from the relatively mild winter climate of western Oregon, was higher than predicted values for this latitude derived from eastern junco populations. This is consistent with predictions of the body size hypothesis for skewed winter sex distributions. Thus, the variable effects of winter climate on survival relative to body size are probably an important determinant of winter distribution in Dark-eyed Juncos.

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Enregistrement 14 de 28 - BA on CD July - December 1992
TI: From nest building to fledging of young in great grey shrikes (Lanius excubitor) at Sede Boqer, Israel.
AU: YOSEF-R
SO: JOURNAL FUER ORNITHOLOGIE 133(3): 279-285
PY: 1992
LA: English
AB: During 1987, 1988, and 1989 the reproductive biology of 21 pairs of Great Grey Shrikes, Lanius excubitor, was observed in Isreal. Eggs were laid at 24 h intervals, 69 % of the clutches comprised 6 eggs, and average clutch size was 5.8 eggs. Incubation period averaged 16.8 days, and month of nesting and ambient temperature influenced length of incubation. Earlier nestings had longer incubation periods, greather hatching success, and less egg mass loss than later ones. An average of 4.7 eggs per nest hatched, and overall nesting success was 63%. Infertility, predation and adverse weather were the major cause of nesting failure.

Enregistrement 15 de 28 - BA on CD July - December 1992
TI: Hatching and the establishment of thermoregulation in the wedge-tailed shearwater (Puffinus pacificus).
AU: MATHIU-P-M; WHITTOW-G-C; DAWSON-W-R
SO: PHYSIOLOGICAL ZOOLOGY 65(3): 583-603
PY: 1992
LA: English
AB: Late-incubation unpipped eggs, pipped eggs, and hatchlings of the wedge-tailed shearwater (Puffinus pacificus) were exposed to constant ambient temperatures (T-a's) between 28 degree and 38 degree C (eggs) or 15 degree and 43 degree C (batchlings). Below 36 degree C (incubation temperature for shearwater eggs), oxygen consumption ( ovrhdot VO-2) and body temperature (T-b) of embryos varied directly with T-a, even with individuals in eggs with well-developed pip holes. Thus, shearwaters appear unable to initiate and sustain any effective cold-induced thermogenesis before hatching, even though access to oxygen appears to improve substantially during pipping. In contrast, hatchling increased their ovrhdot VO-2 by as much as 74% during cooling, with the maximum rate occurring at a T-a of 25 degree C. The consequent increase in heat production served to maintain T-b near 35 degree C at T-a's between 25 degree and 35 degree C, but hypothermia tended to develop below 25 degree C. Hatchlings increased pulmocutaneous evaporation at T-a's above 36 degree C, but this only produced a limited capacity for heat defense. Establishment of endothermy in young of some altricial birds has been linked with increased activity of Ca, Mg-activated myofibrillar ATPase. However, no significant difference in protein-specific activity of this enzyme was found between embryos in pip-holed eggs and hatchlings. This observation provides tentative support for the view that the appearance of endothermy in wedge-tailed shearwaters at hatching is linked more with the elimination of the physiological consequences of physical confinement than with abrupt biochemical maturation.

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Enregistrement 16 de 28 - BA on CD July - December 1992
TI: The ontogeny of thermoregulation in tropical seabirds.
AU: WHITTOW-G-C; MATHIU-P-M; DAWSON-W-R
SO: RESEARCH & EXPLORATION 8(1): 96-107
PY: 1992
LA: English
AB: Based on quantitative measurements, we ranked five species (Sterna fuscata, Anous stolidus, Puffinus pacificus, Diomedea immutabilis, D. nigripes) according to the magnitude of their responses to heat and to cold. Three species of tropical seabirds on Manana Island and two species of albatross at Midway Atoll, in the Hawaiian Islands, revealed that an increase in metabolic heat production during exposure to cold (endothermy) was first detectable in the hatchling. In no instance did the embryo in situ in the egg increase its heat production. This qualitative similarity among the five species was in accord with their classification as semi-precocial, which is based on the maturity of their hatchlings. But the quantitative ranking revealed substantial differences among species that, according to cruder, more qualitative criteria, are nominally the same, i.e. semiprecocial. Our results support the concept of a continuous spectrum of hatchling maturity rather than distinct categories.

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Enregistrement 17 de 28 - BA on CD July - December 1992
TI: Heat increment of feeding and partitioning of dietary energy in yearling black brant.
AU: SEDINGER-J-S; WHITE-R-G; HAUER-W-E
SO: CANADIAN JOURNAL OF ZOOLOGY 70(5): 1047-1051
PY: 1992
LA: English
AB: We examined daily energy expenditure and energy balance by making simultaneous measurements of gaseous exchange and apparent metabolizable energy (AME) intake in four captive Black Brant (Branta bernicla nigricans) that ate alfalfa pellets. Daily energy expenditure was positively correlated with AME intake in all four individuals. The slope of this relationship represented an estimate of the heat increment of feeding, which averaged 0.20 for individuals in positive energy balance. Maintenance balance retained AME at an efficiency of 81%, which is amongst the highest recorded for birds. Thirty-five percent of the apparent net energy for production was accounted for by protein deposition, but the ratio of protein of lipid produced increased from late winter through spring.

Enregistrement 18 de 28 - BA on CD July - December 1992
TI: Impacts of a severe drought on grassland birds in western North Dakota.
AU: GEORGE-T-L; FOWLER-A-C; KNIGHT-R-L; MCEWEN-L-C
SO: ECOLOGICAL APPLICATIONS 2(3): 275-284
PY: 1992
LA: English
AB: We studied the effect of a severe drought on the population dynamics and community structure of grassland birds in western North Dakota (USA). During the spring and summer of 1988 the northern Great Plains suffered one of the warmest, driest periods in its recorded history. We compared the changes in bird populations and nesting productivity over a 3-yr period before, during, and after the drought. Total grassland bird density declined 61% (P lt .05) between June 1987 and June 1988. Densities of six of eight common species declined significantly during the drought. Populations of all but two species recovered in 1989 and total bird density in June 1989 did not differ significantly from June 1987. Species richness and species diversity both declined significantly during the drought and recovered to predrought levels in 1989. Species richness declined more on fair condition than on good condition during the drought. Vesper Sparrow (Pooecetes gramineus) hatching success, number of young fledged per successful nest, and nesting success were significantly lower in 1988 than either 1987 or 1989. Clutch size did not differ among the three years. The decline in nesting success in 1988 was primarily due to nest abandonment during incubation. Nesting of Vesper Sparrows, Horned Larks (Eremophila alpestris), and Western Meadowlarks (Sturnella neglecta) ended abrubtly in mid-June 1988 during a period of extremely hot weather. In 1987 and 1989, nesting continued into July. Despite substantial reductions in bird density and productivity during the drought, many species recovered to predrought levels 1 yr following the drought. This suggest that year-to-year fluctuations in densities of some of these species may not be tightly linked to short-term changes in local productivity. However, sequential years of low productivity may have more substantial effects on these short-lived species. Thus, if drought conditions in North American grasslands become more frequent, as some climate models predict, there could be related changes in the avifauna of the regions.

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Enregistrement 19 de 28 - BA on CD July - December 1992
TI: Vertebrate populations as indicators of environmental change in southern Africa.
AU: MACDONALD-I-A-W
SO: TRANSACTIONS OF THE ROYAL SOCIETY OF SOUTH AFRICA 48(1): 87-122
PY: 1992
LA: English
AB: Two categories of historical change in vertebrate populations are analyzed: decreases leading to species being included in local Red Data Books and changes in distribution and abundance of what are often more common species, as revealed by regional surveys. The former category of change tends to reflect radical anthropogenic influences (e.g., habitat transformation, persecution and overuse). The latter generally reflects the more widespread forms of habitat modification (e.g. 'bush encroachment', the spread of alien trees into formerly 'treeless' biomes, and 'desertification' through overgrazing of semi-arid rangelands). Destruction of vleis and marshes has been important throughout the region. Any long-term climatic change that might have occurred over the last two centuries is not reflected by changes in vertebrate populations. Several vertebrate changes do, however, indicate a general tendency for the woody plant component of savanna communities to increase in density. This trend is consistent with the predicted response of these communities to the observed global increase in the atmospheric concentration of carbon dioxide. Short-term variations in annual rainfall have given rise to significant fluctuations in vertebrate populations. Vertebrates could be partially useful in monitoring future climatic change where the effects of such change can be predicted in terms of alterations in the relative abundance of woody and herbaceous vegetation. Continuous monitoring of bird populations would probably be the most effective approach to detecting such changes. The effects of a wide range of other factors, as detailed in the analysis, must be filtered out before variations in vertebrate populations can be attributed to climatic change.

Enregistrement 20 de 28 - BA on CD July - December 1992
TI: Bioenergetics of a desert specialist, the double-banded sandgrouse, and the problem of stress induced by experimental conditions.
AU: HINSLEY-S-A
SO: COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY A COMPARATIVE PHYSIOLOGY 102(3): 433-439
PY: 1992
LA: English
AB: Double-banded sandgrouse Pterocles bicinctus are well adapted to deal with high temperatures, by the combination of a low resting metabolic rate (46% It allometric prediction), high upper critical temperature ( gt 42.7 degree C), increased thermal conductance at high temperatures and a well-developed evaporative heat loss capability (100% of metabolic heat production dissipated at 38.7 degree C). Measurements of metabolism involving integration over relatively long periods do not appear suitable for nervous species such as sandgrouse. The stress imposed by the environment of a controlled temperature room caused existence metabolism to be overestimated.

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Enregistrement 21 de 28 - BA on CD July - December 1992
TI: Energy metabolism, respiratory quotient and breathing parameters in two convergent small bird species: The fork-tailed sunbird Aethopyga christinae (Nectariniidae) and the Chilean hummingbird Sephanoides sephanoides (Trochilidae).
AU: PRINZINGER-R; SCHAFER-T; SCHUCHMANN-K-L
SO: JOURNAL OF THERMAL BIOLOGY 17(2): 71-79
PY: 1992
LA: English
AB: 1. The sunbird Aethopyga christinae and the hummingbird Sephanoides sephanoides have very similar body masses (5.2 and 5.7 g) and extensive morphological convergences. Experiments have been performed to determine whether both bird taxa also exhibit similar patterns of body temperature-regulation and energy metabolism. 2. The metabolic rate of the non-passerine hummingbird is higher than predicted but within the expected range for the passerine sunbird. The hummingbird underoges torpor, the duration and level of which are clearly correlated with ambient temperatures. The sunbird does not show any lethargy even when forced to fast. 3. Under euthermic conditions body temperature (T-b) in both species lies within the normal range. "Hypotheria" in the sunbird reduces T-b to 32-33 degree C, T-b of the hummingbird may fall slightly below 20 degree C during torpor. 4. The mean rate of heat loss below the thermoneutral zone is (day/night) 8.04/5.38 J (g h degree C)-1 or 2.23/1.5 mW (g degree C)-1 in the hummingbird and 8.61/4.21 J (g h degree C)-1 or 2.39/1.17mW(g degree C)-1 in the sunbird. 5. The respiratory quotient at night varies between 0.75 and 0.80 in both species. Mean values during the day are 1.05 in the hummingbird and 1.2 in the sunbird. 6. The mean ventilation frequency (day/night) is 183/158 min-1 in the hummingbird and 193/117 min-1 in the sunbird; tidal volumes are 0.170/0.099 ml and 0.172/0.090 ml, respectively. Only minute volumes during night are significantly different between the species (higher in the hummingbird). 7. The hummingbird shows special physiological characteristics, whereas the data for the sunbird are almost in the theoretically expected range.

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Enregistrement 22 de 28 - BA on CD July - December 1992
TI: Physiological responses of cold-stressed blue and snow phase lesser snow goose goslings.
AU: BEASLEY-B-A; ANKNEY-C-D
SO: CANADIAN JOURNAL OF ZOOLOGY 70(3): 549-552
PY: 1992
LA: English
AB: A comparison of cold-stressed Lesser Snow Goose (Chen caerulescens caerulescens) goslings revealed that the metabolic rates of light-colored (snow) and dark-colored (blue) goslings did not differ when they were measured in the dark. Small differences in plumage insulation (higher in snow goslings) and core body temperature (lower in blue goslings) seemed to balance each other so that there was no difference in rates of thermogenesis between morphs. We conclude that physiological thermoregulation does not compensate for potential differential radiative heat loads between the morphs.

Enregistrement 23 de 28 - BA on CD July - December 1992
TI: Nestling food of the swallow (Hirundo rustica) in central Westphalia.
AU: LOSKE-K-H
SO: VOGELWARTE 36(3): 173-187
PY: 1992
LA: German
AB: The nestling food of the Swallow (Hirundo rustica) was studied in Central Westphalia (Germany) in 1987 and 1988 by means of neck rings. Food samples contained 15 different orders of arthropods. Most commonly within the samples was the order Diptera with 41 different families and a frequency (% of all prey items) of 66.2%. Diptera occurred in 91.4% of all samples. According to the frequencies in main prey taxa taken were Bibionidae, Syrphidae, Muscidae, Rhagionidae und Empididae. There was a clear seasonal variation in the frequency of the taxa taken. In June Muscidae, Ephemeroptera and Empididae dominated, in July Homoptera, Rhynchota, Syrphidae and Rhagionidae were the main prey taxa. In August Bibionidae and Syrphidae predominated. The percentages of the taxa taken differed significantly between 1987 and 1988. The number of prey items per sample varied between 1 and 102 ( hivin x = 9.3). The body size of the arthropods in the food samples ranged from 0.6 to 16.5 mm ( hivin x = 5.7). The weight of the food boluses ranged from 0.8-149.9 mg ( hivin x = 26.1). Large, mobile prey items were heavily selected for. Prey size taken decreased during summer. Tabanidase, Bibionidae, Tipulidae, Rhagionidae, Stratiomyidae, Ephemeroptera and Syrphidae were preferred strongly. There was a reduction on average bolus dry weight from June to August by 31%. Prey selection was dependent on weather conditions. The largest boluses were collected in rainy weather, the smallest during sunny periods. However, boluses were large at medium temperatures and wind speeds. Homoptera, Ephemeroptera and Muscidae were typical bad weather prey. Adult foraging behaviour changed during the breeding season, indicated by a seasonal preference for certain feeding patches. The distance travelled to a feeding site was shorter late in the season. Bad weather feeding patches in August on average were more than three times nearer than in June. The size of a bolus is mainly influenced by the type of prey, the quality of feeding patches and the extent of total flight costs.

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Enregistrement 24 de 28 - BA on CD July - December 1992
TI: A possible relationship between reversed sexual size dimorphism and reduced male survivorship in the ruby-throated hummingbird.
AU: MULVIHILL-R-S; LEBERMAN-R-C; WOOD-D-S
SO: CONDOR 94(2): 480-489
PY: 1992
LA: English
AB: An examination of 28 years of banding data from Powdermill Nature Reserve in southwestern Pennsylvania (USA) showed the following trends in the sex ratio (female:male) of Ruby-throated Hummingbirds (Archilochus colubris): 1.1:1 for immature hummingbirds caught in late summer and fall; 1.4:1 for adults in spring (April-May); 3.1:1 for adults in summer (June-7 August); and 4.1:1 for adults in fall (8 August-October). Hypotheses to explain these increasingly female-biased sex ratios include differential migration, capture bias and differential mortality. Banding data from eight other stations in eastern North America provided no evidence of different fall migration routes for males and females. We detected no capture bias at Powdermill, with respect to mesh size of mist nets, net wariness or net avoidance ability, but there was seasonal variation in the number of overlapping captures of males and females at individual mist nets: spring (81.5%); summer (27.6%); fall (44.7%). A capture bias resulting from differences between the sexes in the use of habitats sampled by our mist nets has likely contributed to observed sex ratio variation. Differential mortality, with males suffering greater losses than females, probably also contributed to this variation. Estimated annual survivorship calculated from returns of banded hummingbirds to Powdermill was lower for males (0.294) than females (0.446), but this difference was not siignificant. The mean minimum known age for returning male hummingbirds at Powdermill was significantly less than that for females; furthermore, the oldest known age for a returning male (three years) was half that observed for a female. The lower inferred survivorship for males may be related to reversed sexual size dimorphism in this species. The body mass of female Ruby-throated Hummingbirds was significantly greater than that of males and did not vary between May and August, whereas males weighed significantly less in June and July than they did in May and August. Low mid-summer mass in males, coupled with increased metabolic demands during the breeding season, may lead to a fatal "energy crisis" in this sex during nocturnal fasting or periods of inclement weather.

Enregistrement 25 de 28 - BA on CD July - December 1992
TI: Nesting mortality of Carolina chickadees breeding in natural cavities.
AU: ALBANO-D-J
SO: CONDOR 94(2): 371-382
PY: 1992
LA: English
AB: Nest-holes are conventionally thought to enhance avian breeding success by the protection they offer against inclement weather and predation. Studies of birds nesting in natural cavities are rare, however, and much remains to be discerned about the reproductive costs and benefits of the hole-nesting habit. This study documents nesting mortality within a southern Illinois (USA) population of Carolina Chickadees (Parus carolinensis) breeding in natural cavities, and relates variation in mortality with variation in nest-hole structure and microclimate. Ambient-air vs. nest-hole temperature differentials were used as indices of nest-hole insulative capacity. Little variation in air-nest temperature differentials was found among nests and variation in nest-hole structure was not strongly correlated with variation in any of the indices of insulative variation. No total nest failures were attributable to ambient extremes. Predation was the greatest influence on nesting success, accounting for every case of total nest-loss (11/51 nests) and 78.7% of all egg and chick mortality. Nests excavated nearer the ground and in softer wood were preyed upon significantly more than higher or more solidly-housed nests. The availability of nest-holes appeared to decline at greater, thus safer, heights as the breeding season progressed. This apparent temporal decline in the availability of optimal nest-sites may reflect the subordinate status of chickadees among larger, more aggressive hole-nesting species. I suggest that chickadees may compensate for this low ranking status with their great nest-site selection plasticity as well as their ability to rapidly renest following nest destruction.

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Enregistrement 26 de 28 - BA on CD July - December 1992
TI: Effects of a sudden, transient fall in air temperature on the winter body mass of five species of tits (Parus).
AU: HAFTORN-S
SO: JOURNAL FUER ORNITHOLOGIE 133(2): 147-154
PY: 1992
LA: German
AB: Individuals of five tit species (Parus major, P. caeruleus, P. ater, P. palustris and P. montanus) which, at Klaebu in central Norway, regularly visited a feeder provided with sunflower seeds and suet during the winter of 1987/88, were suddenly exposed to a -20 degree C fall in the ambient temperature in February. The cold spell lasted for only 4 days, whereafter the temperature rose once again. Several of the birds had been weighed in the early morning and in the late evening just prior to, during and after the fall in temperature. With the possible exception of 2-4 of the Willow Tits, i. e. the species which ranks lowest in the interspecific hierarchy, the birds were clearly able to compensate appropriately for the increased energy requirement during the cold spell and replenish the daily fat reserves. It is thus likely that they had benefited from the extra food supply available to them, although they had to compete strongly for it, with the exception of the most dominant species, the Great Tit. None of the tits disappeared during the cold spell, indicating that this meterological event had not caused any mortality.

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Enregistrement 27 de 28 - BA on CD July - December 1992
TI: Stability, regulation, and the determination of abundance in an insular song sparrow population.
AU: ARCESE-P; SMITH-J-N-M; HOCHACHKA-W-M; ROGERS-C-M; LUDWIG-D
SO: ECOLOGY 73(3): 805-822
PY: 1992
LA: English
AB: The population dynamics of the Song Sparrow, Melospiza melodia, were studied for 15 yr on Mandarte Island, in southwestern British Columbia, Canada. This population exhibited a high median density (7.8 females/ha) and fluctuated strongly (10-fold or more) from year to year. The population received few successful immigrants, even at low densities, and its dynamics were thus driven by local events. Two strong density-dependent regulating mechanisms were detected. First, reproductive output was strongly depressed at high densities because of an increased rate of nest failure and a decline in mean clutch size. Greater nest failure at high density was due to an increased predation on eggs and nestlings. Nest failure increased with the rate of nest parasitism by Brown-headed Cowbirds (Molothrus ater) and was lowest when cowbirds were absent from Mandarte, suggesting that cowbirds either cause or facilitate nest failure. Second, the rate of juvenile recruitment was inversely related to the density of adults, because of interference competition for breeding territories between adults and yearlings. The survival rate of adults was independent of population density. Survival rates of adults and juveniles were negatively affected by weather in February 1989, when an unusually cold spell coincided with the loss of over 90% of the population. A second severe population crash occurred during the winter of 1979-1980, but the cause of this crash is not known. On two other occasions, periods of severe winter weather occurred at the same time as a substantial fraction of the population disappeared. However, not

all periods of poor weather were accompanied by marked disappearances of birds. Adult females survived better than adult males during the breeding season but equally well outside it. We found no correlations between the survival rates of juveniles and adult males and females in years without a population crash, suggesting that there is no common cause underlying the observed variation in survival among age and sex classes in most years. Simple models of the population indicate that either density-dependent reproductive success or density-dependent recruitment of locally hatched juveniles can regulate population size. These two regulatory factors operate in a sequential and independent manner. Despite the presence of strong regulating factors, population crashes caused marked instability in population size, nearly leading to extinction in 1989. The rate of juvenile recruitment was the only factor closely related to the net rate of population growth in noncrash years and in all years combined, indicating that juvenile recruitment is the central factor affecting the abundance of Song Sparrows on Mandarte Island.

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Enregistrement 28 de 28 - BA on CD July - December 1992
TI: Increases in Antarctic penguin populations: Reduced competition with whales or a loss of sea ice due to environmental warming?
AU: FRASER-W-R; TRIVELPIECE-W-Z; AINLEY-D-G; TRIVELPIECE-S-G
SO: POLAR BIOLOGY 11(8): 525-531
PY: 1992
LA: English
AB: A central tenet of Antarctic ecology suggests that increases in Chinstrap Penguin (Pygoscelis antarctica) populations during the last four decades resulted from an increase in prey availability brought on by the decrease in baleen whale stocks. We question this tenet and present evidence to support the hypothesis that these increases are due to a gradual decrease in the frequency of cold years with extensive winter sea ice cover resulting from environmental warming. Supporting data were derived from one of the first, major multidisciplinary winter expedition to the Scotia and Weddell (Antarctica) seas; recent satellite images of ocean ice cover, and the analysis of long-term surface temperature records and penguin demography. Our observations indicate there is a need to pay close attention to environmental data in the management of Southern Ocean resources given the complexity of relating biological changes to ecological perturbations.

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Enregistrement 41 de 688 - BA on CD January - June 1992
TI: Spatial variation in winter survival of song sparrows Melospiza melodia.
AU: ROGERS-C-M; SMITH-J-N-M; HOCHACHKA-W-M; CASSIDY-A-L-E-V;TAITT-M-J; ARCESE-P; SCHLUTER-D
SO: ORNIS SCANDINAVICA 22(4): 387-395
PY: 1991
LA: English
AB: The resident population of Song Sparrows breeding on Mandarte Island, British Columbia (Canada) fluctuated markedly between 1975 and 1989. A major population crash occurred during a week of unusually severe winter weather in early February 1989.Over 90% of Song Sparrows alive on the island in mid-January 1989 disappeared by 9-12 February 1989. The high mortality was accompanied by directional natural selection favouring female birds with longer wings. No selection was detected among males.We addressed the alternative hypothesis that Song Sparrows died of disease rather than poor weather. The population of Fox Sparrows Pasteurella iliac wintering on Mandarte also declined sharply during the same period as Song Sparrows. The contemporaneous decline in the population size of these two species supports the conclusion that severe weather caused the population crashes. However, Fox Sparrows survived the poor weather better than Song Sparrows, possibly because of greater fat reserves in the former species. The effect of cold weather on population size of Song Sparrows was local. Sex-specific adult mortality was highest on Mandarte, lowest at a nearby mainland site provided with supplemental winter food, and intermediate on similar islands near Mandarte. Our findings suggest three general points of interest. First, avian populations can be studied for a relatively long time (here, 14 yr) before rare but critical environmental effects on population size are found. Second, local populations comprising a large metapopulation can show highly variable responses to severe environmental conditions. Finally,if populations at nearby sites can behave very differently,community interactions dependent upon population densities of interacting species may also vary on the same local scale (Wiens1977).

Enregistrement 125 de 688 - BA on CD July - December 1992
TI: Obligate cavity-roosting as a constraint on dispersal of green (red-billed) woodhoopoes: Consequences for philopatry and the likelihood of inbreeding.
AU: DU-PLESSIS-M-A
SO: OECOLOGIA (HEIDELBERG) 90(2): 205-211
PY: 1992
LA: English
AB: I studied and compared with histories and dispersal patterns of two populations of green (red-billed) woodhoopoes Phoeniculus purpureus, occupying different habitats (with widely different vegetation, topography and climate), over a period of eight years(258 "flock years") in the eastern Cape Province, South Africa.The birds are obligate cavity-roosters, and I performed an experiment in which several woodhoopoe territories were established after the introduction of artificial roost sites in an area which previously supported no woodhoopoes. The evidence supports the hypothesis that roost cavities are critical indetermining the limits to woodhoopoe distribution. Group size,dispersal frequency and dispersal distance differed significantly between the two study sites. I suggest that where cavities are in short supply and unevenly distributed, long-distance scouting forays are undertaken at a high probability of not finding a safe roost site to sleep in. This may result in an increased probability of predation, or physiological conditions with which an individual in poor body condition cannot cope. I propose that among woodhoopoes a stay-and-foray dispersal strategy is preferred to a depart-and-search strategy for a number of reasons. First, there is no within-group competition for limiting resources, since roost cavities do not provide a situation in which within-group conflict could arise. Second, I show that competition for breeding vacancies is more severe at the inland than at the coastal site, further borne out by the fact that,compared to coastal birds, inland ones are proportionally more likely to attain breeding status in the natal group than elsewhere. Finally, I propose that such environmentally-induced differential dispersal patterns between the two study sites have indirectly affected the frequency with which apparent inbreeding occurs, and I suggest that since incestuous pairings are relatively common, they either have no deleterious consequences for breeder fitness, or the potential costs of inbreeding are counterbalanced by the risks associated with dispersal.

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Enregistrement 143 de 688 - BA on CD July - December 1992
TI: The breeding biology of the splendid fairy-wren Malurus splendens: The significance of multiple broods.
AU: ROWLEY-I; BROOKER-M; RUSSELL-E
SO: EMU 91(4): 197-221
PY: 1991
LA: English
AB: A colour-banded population of Malurus splendens was studied from 1973-1988 in up to 34 cooperative-bleeding territorial groups in woodland-heath near Perth (Western Australia,Australia). The study is considered in the three parts: 1973-77,with regular minor patchy fires; 1978-84, with no fires; and 1985-1988, after a major fire in January 1985. Eggs were laid from late August to January, mostly in September-November. Raining mid-to late August may delay the start of laying. Groups without dependent young may continue breeding into January but most such late attempts fail during periods of extreme heat.Before November, most nests were within 1 m of the ground; later nests were higher. Most clutches were of three eggs (mean = 2.90)and clutch size did not vary during the breeding season or from year to year. Incubation lasted 14-15 days (13-14 d in December),nestlings hatched synchronously and fledged 10-12 days later.Parasitism by cuckoos varied between years, affecting from 0 to 52% of nests (mean = 21%); the most common nest predators were reptiles and cats. Fertility was 93% and over all years 49% of eggs produced fledglings (1973-77: 56% 1978-84; 58%; 1985-88:33%); 52% of nests produced at least one fledgling. Replacement clutches were laid soon after a nest failed, often within seven days. M. splendens is multi-brooded; variation in reproductive effort occurs through the number of clutches, not clutch size.Overall, 36% of females renested after successfully rearing abrood: 22% of females reared two broods, with considerable variation between years (63.6% in 1978; 2.8% in 1985). Groups produced a mean of 3.2 fledglings and 2.2 independent young per year; even in years with a high rate of nest failure, 75% of groups produced at least one fledgling. Breeding success did not differ between early and late nests, and fledglings survived equally well. The production of multiple broods is an important feature in the life history of M. splendens and other resident Australian passerines.

Enregistrement 199 de 688 - BA on CD January - June 1993
TI: Timing and patterns of visible autumn migration: Can effects of global warming be detected?
AU: GATTER-W
SO: JOURNAL FUER ORNITHOLOGIE 133(4): 427-436
PY: 1992
LA: German
AB: For 21 years, diurnal migration of 46 bird species were observed under standardized conditions at Randecker Maar, SW Germany. The data are examined as to whether changes in median dates of passage of these species can be detected. For this purpose the data were analyses separately for three periods, i.e.1970-76, 1977-83 and 1984-90. In 1970 to 1983, according to meteorological data the weather-related onset of autumn was delayed by five days in northern Germany and by six days in southern Germany. During the last observation period, 19 (67%) of the 28 passerine short-distance migrants passed on average up to 10 days later compared to the first observation period. In 14 of these species the median dates changed continuously. Only 5 species migrated earlier than before. The majority of the short-distance migrants, therefore, seems to have adapted to the later onset of autumn. Currently there seem to be no plausible reasons for delayed migration other than climatic changes. The median dates in Non-Passerines were less clear-cut. Among short-distance migrants, delayed migration was found in 5,advanced migration in 4 species and among long-distance migrants,delayed migration was noted in 4 species, advanced migration in 3 species. Short-distance migrants may gain advantages from a longer stay on their Central European breeding grounds.Populations departing late should tend to become resident, thus advancing the median date for the fractions of population still migrating. Even advanced migration may thus be explained by global warming. Long-distance migrants, however, may only occasionally profit from a longer stay on their breeding grounds.Their arrival south of the Sahara coinciding with the short monsoon rainfalls probably has greater selective significance.Deviations in arrival times caused by climatic changes may thus lead to catastrophies as is currently discussed in the case of Tawny Pipit. The influence of global warming on bird migration and the changes in migration patterns ensuing from it were to be expected after laboratory results. Here, this influence is shown in a long-term study of free-living populations of a large number of species.

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Enregistrement 203 de 688 - BA on CD January - June 1993
TI: A 24-year study of bald eagles on Besnard Lake, Saskatchewan.
AU: GERRARD-J-M; GERRARD-P-N; GERRARD-P-N; BORTOLOTTI-G-R;DZUS-E-H
SO: JOURNAL OF RAPTOR RESEARCH 26(3): 159-166
PY: 1992
LA: English
AB: Productivity of Bald Eagles (Haliaeetus leucocephalus) on Besnard Lake Canada over a 24-year period was relatively stable.Occasional decreases in productivity appear related to weather conditions encountered during spring migration and upon arrival at Besnard Lake. Studies of four marked birds suggest considerable nest site fidelity. Observations of marked eagles in combination with surveys of Bald Eagles on Besnard and other local lakes provide insight into age structure for the local population and into adult mortality rates. We estimate adult mortality in this stable population to be 6.5-7.7%. Population stability appears to be maintained as a result of the eagles' deferring first breeding to age six.

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Enregistrement 219 de 688 - BA on CD January - June 1993
TI: Influence of weather conditions on pallid swift Apus pallidus breeding success.
AU: CUCCO-M; MALACARNE-G; ORECCHIA-G; BOANO-G
SO: ECOGRAPHY 15(2): 184-189
PY: 1992
LA: English
AB: The reproductive ecology of three colonies of pallid swift in a warm continental climate (Piedmont, NW-Italy) was studied over a ten years period. About 60% of the clutches were lain in late May and June, but continued until late August and September,when some females laid a second clutch. Clutch size and the mean number of fledged young decreased progressively from spring to autumn. Laying dates were influenced by rain and temperature:unfavourable weather conditions during May induced most females to postpone egg laying until June. Clutch size was not related to the rain or temperature parameters considered. These observations differ from the findings about the common swift studied in cool temperate areas, where a very short stay in the breeding colonies does not allow a delaying in laying, and spring weather conditions therefore have a strong influence on clutch size.There are also differences about the effect of weather on chick rearing. In warmer climates, typical of our colonies, fledging success is hindered both by too dry to too rainy seasons, even if these situations very rarely occur and the three-egg clutch is always the most productive. In colder climates the breeding success of the common swift depends primarily on the climatic conditions of May, and in bad weather a two-egg clutch is more productive than a clutch of three. In summary, the annual breeding

success of the pallid swift appears little influenced by weather changes, due to a lesser impact of adverse conditions in Southern climates and the possibility, for this species, of shifting the laying period in response to a temporary worsening of climatic conditions.

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Enregistrement 245 de 688 - BA on CD July-December 1993
TI: Some aspects of the breeding biology of the rose-ringed parakeet, Psittacula Krameri Borealis (Neumann).
AU: HOSSAIN-T; HUSAIN-K-Z; RAHMAN-K
SO: BANGLADESH JOURNAL OF ZOOLOGY 21(1): 77-85
PY: 1993
LA: English
AB: Ten pairs of Rose-ringed parakeets, Psittacula krameri borealis (Neumann) were studied from August 1989 to July 1990.The birds laid 40 eggs in 11 clutches. Of these about 50% eggs hatched, out of which 75% of the young left the nest in fledged condition. The breeding success was 37.50%. The causes of failure in the egg stage were infertility, incomplete development for unknown reasons, predation by Jungle Crow and damage due to rain.The youngs were lost due to predation by Jungle crow and also due to starvation and cold. The male fed the female during incubation and brooding. Only the female fed the nestlings by the process of regurgitation during early development

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Enregistrement 263 de 688 - BA on CD July-December 1993
TI: Survival rates of female mallards wintering in the Playa Lakes region.
AU: BERGAN-J-F; SMITH-L-M
SO: JOURNAL OF WILDLIFE MANAGEMENT 57(3): 570-577
PY: 1993
LA: English
AB: Effective management and modelling of the Playa Lakes Region(PLR) mallard (Anas platyrhynchos) population requires season and cause specific survival estimates. Habitat protection and management strategies will benefit from survival data as well.Thus, we monitored 153 radio-marked female mallards during 3 winters 1986-87 to 1988-89, to examine factors affecting survival in the PLR. Mean survival rate during the 100-day period 21 November to 1 March was 0.777 +- 0.04 (SE). We did not detect any age or annual differences in survival. Precipitation had habitat availability varied among years. Survival rates (S) were higher(P lt 0.10) for individuals in good body condition (s = 0.888 +-0.07) than those in poor condition (S = 0.661 +- 0.09). The hunting season mortality rate was 0.018 +- 0.05. Natural mortality, which included avian predation, during the 100-day study period was 0.210 (+-0.07). Crippling mortality could not be determined because of rapid carcass loss. Early season body condition and extended sub-freezing weather appear to impact mallard survival most in the PLR. Habitat management shoulden compass the entire PLR to include secondary habitats used by mallards during freezing weather.

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Enregistrement 267 de 688 - BA on CD July-December 1993
TI: Winter metabolism of coniferous forest tits (Paridae) under arctic conditions: A study with doubly labeled water.
AU: CARLSON-A; MORENO-J; ALATALO-R-V
SO: ORNIS SCANDINAVICA 24(2): 161-164
PY: 1993
LA: English
AB: Daily field metabolic rates (FMR) during mid winter of two species of coniferous forest tits, Siberian Tit Parus cinctus and Willow Tit Parus montanus were measured with the doubly-labeled water (DLW) technique north of the Arctic circle in Sweden. The Siberian Tit is approximately 10% larger than the Willow Tit.Despite this difference in body mass no significant differences in field metabolic rates between the two species were found in our sample. Both species expended 10-20% less energy than predicted by recently derived allometric equations. Northern populations of Willow Tits had significantly higher FMR and metabolic intensities, M (M = FMR/BMR-p) than a more southern population. This hints at an intraspecific latitudinal cline in basal metabolic rates (BMR). The two species' predicted metabolic rate at their northern boundary in Scandinavia implies that physiological adaptations to winter conditions of both Siberian and Willow Tits have evolved further to the east within their range where they are exposed to harsher climatic conditions during winter.

Enregistrement 269 de 688 - BA on CD July-December 1993
TI: Geographic variation in winter fat of dark-eyed juncos:Displacement to a common environment.
AU: ROGERS-C-M; NOLAN-V-JR; KETTERSON-E-D
SO: ECOLOGY (TEMPE) 74(4): 1183-1190
PY: 1993
LA: English
AB: Many small temperate-zone birds fatten in winter and use this reserve when food becomes unavailable. The winter body mass of migratory Dark-eyed Juncos (Junco hyemalis) usually is greater where severe weather is more frequent, i.e., at higher latitudes or altitudes. The mechanism responsible for this geographic variation is unknown, and we asked whether geographically separated populations are composed of birds with different capacities or tendencies to fatten. We sampled the lipid index(LI, grams of lipid per gram of lean dry mass) of free-living juncos at three latitudes in two winters and found geographic variation. However, the pattern of variation in LI at the three latitudes was not consistent, either within or between winters.We also displaced wintering juncos from northern, intermediate,and southern sites and exposed them to a common environment in Indiana (USA). One group of displaced birds was released in natural junco habitat (during three winters), and another was held outdoors in captivity (during two winters). Many released birds remained nearby, and when we recaptured some of them in late winter the LIs of the three geographic subgroups were statistically indistinguishable. It was also indistinguishable from the LI of juncos sampled at that time from the free-living Indiana population. Among the displaced birds that we held captive, we found no differences among the geographic subgroups either in LI or total body mass. In one of the years, late-winter LI and body mass of the captives did not differ from values for the released group or from values of newly caught Indiana juncos,but in the second year values for the captives were lower. Our results indicate that geographic variation in winter fattening of juncos is not a population-specific trait that persists independently of current environmental information and that it probably reflects a response to local environmental conditions.To our knowledge, this is the first experiment using free-living birds to test the role of the environment in maintaining geographic variation in a life history trait in the nonbreeding period.

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Enregistrement 278 de 688 - BA on CD July-December 1993
TI: Sea-level rise: Destruction of threatened and endangered species habitat in South Carolina.
AU: DANIELS-R-C; WHITE-T-W; CHAPMAN-K-K
SO: ENVIRONMENTAL MANAGEMENT 17(3): 373-385
PY: 1993
LA: English
AB: Concern for the environment has increased over the past century, and the US Congress has responded to this concern bypassing legislation designed to protect the nation's ecological biodiversity. This legislation, culminating with the Endangered Species Act of 1973, has been instrumental in defining methods for identifying and protecting endangered or threatened species and their habitats. Current legislation, however, assumes that the range of a protected species will stay constant over time.This assumption may no longer be valid, as the unprecedented increase in the number and concentration of greenhouse gases in the atmosphere has the potential to cause a global warming of 1.0-4.5 degree C and a sea-level rise (SLR) of 31-150 cm by the year 2100. Changes in climate of this magnitude are capable of causing shifts in the population structure and range of most animal species. This article examines the effects that SLR may have on the habitats of endangered and threatened species at three scales. At the regional scale 52 endangered or threatened plant and animal species were found to reside within 3 m of mean sea level in the coastal stages of the US Southeast. At the state level, the habitats of nine endangered or threatened animals that may be at risk from future SLR were identified. At the local level, a microscale analysis was conducted in the Cape Romain National Wildlife Refuge, South Carolina, USA, on the adverse effects that SLR may have on the habitats of the American alligator, brown pelican, loggerhead sea turtle, and wood stork.

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Enregistrement 279 de 688 - BA on CD July-December 1993
TI: A spatial simulation model of hydrology and vegetation dynamics in semi-permanent prairie wetlands.
AU: POIANI-K-A; JOHNSON-W-C
SO: ECOLOGICAL APPLICATIONS 3(2): 279-293
PY: 1993
LA: English
AB: The objective of this study was to construct a spatial simulation model of the vegetation dynamics in semi-permanent prairie wetlands. A hydrologic submodel estimated water levels based on precipitation, runoff, and potential evapotranspiration.A vegetation submodel calculated the amount and distribution of emergent cover and open water using a geographic information system. The response of vegetation to water-level changes was based on seed bank composition, seedling recruitment and establishment, and plant survivorship. The model was developed and tested using data from the Cottonwood Lake study site in North Dakota. Data from semi-permanent wetland P1 were used to calibrate the model. Data from a second wetland, P4, were used to evaluate model performance. Simulation results

were compared with actual water data from 1979 through 1989. Test results showed that differences between calculated and observed water levels were within 10 cm 75% of the time. Open water over the past decade ranged from 0 to 7% in wetland P4 and from 0 to 8% in submodel simulations. Several model parameters including evapotranspiration and timing of seedling germination could be improved with more complex techniques or relatively minor adjustments. Despite these differences the model adequately represented vegetation dynamics of prairie wetlands and can be used to examine wetland response to natural or human-induced climate change.

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Enregistrement 281 de 688 - BA on CD July-December 1993
TI: Monitoring and "singularities": Was 1992 a good breeding season?
AU: BEZZEL-E
SO: JOURNAL FUER ORNITHOLOGIE 134(2): 199-204
PY: 1993
LA: German
AB: In 1985-1992 the dynamics of local bird communities were studied by year-round transect counts in an area of the northern Alps (800-1000 m asl.; Bavaria). The total of families (adult swith fledglings) over all species per year was nearly constant within five successive years. In 1992 the number of families was extremely high, whereas in 1991 the lowest total was registered.over eight years no correlation between total of families and abundance values in May could be found. This means, that higher production was not due to higher density of breeding pairs in spring. However, in 1992 the may was extremely warm and dry,whereas during may 1991 the lowest mean temperature and the most days with snowfall within the study period could be registered.The abundance in June fluctuating within a rather low range was correlated with the total of families. For July and August,however, only a very weak correlation was found indicating that a higher production of young was eliminated from the study plots either by dismigration or by higher juvenile mortality.Monitoring weather effects on bird communities as well as on populations in long-term studies my be important to analyse the influence of predicted global warming.

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Enregistrement 284 de 688 - BA on CD July-December 1993
TI: Past and prospective carbon storage in United States forests.
AU: BIRDSEY-R-A; PLANTINGA-A-J; HEATH-L-S
SO: FOREST ECOLOGY AND MANAGEMENT 58(1-2): 33-40
PY: 1993
LA: English
AB: Global concern about increasing carbon dioxide concentrations in the atmosphere and the possible consequences of future climate changes have generated interest in understanding and quantifying the role of terrestrial ecosystems in the global carbon cycle. Historical changes in carbo storage in US forests have been estimated from periodic, comprehensive national inventories of forest resources. Since 1952, carbon stored on US timberland has increased by 38% or 8.8 times 10-15 g, primarily in the East. This increase is consistent with recently reported trends in Europe and accounts for as much as 21% of a hypothesized carbon sink in Northern temperate forests.Projections of changes in carbon storage over long periods of time were made with a carbon budget model that has been integrated with economic models of the forest sector. Carbon storage is expected to increase until 2040 but at a slower rate than at present.

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Enregistrement 285 de 688 - BA on CD July-December 1993
TI: Status and population trends of Hawaii's native waterbirds,1977-1987.
AU: ENGILIS-A-JR; PRATT-T-K
SO: WILSON BULLETIN 105(1): 142-158
PY: 1993
LA: English
AB: Status and population trends of Hawaii's (USA) native waterbirds were examined from 1977 through 1987. Waterbird population fluctuations were analyzed in relation to rainfall and land use dynamics. Numbers of Hawaiian Duck (Koloa) (Anas wyvilliana) and Hawaiian Common Moorhen (Gallinula chloropussandvicensis) appeared stable over time; however, surveys were limited. Increase in Black-crowned Night-Heron (Nycticorax nycticorax) abundance appeared linked to expansion of aquaculture, particularly on Oahu, and not to climatic events.Annual rainfall patterns help explain and predict population fluctuations and anomalous distribution patterns involving Hawaiian American Coots (Fulica americana alai), moorhens, and Hawaiian Black-necked Stilts (Himantopus mexicanus knudseni).Coot, stilt, and moorhen populations fluctuated with climatic events, and intra-island dispersal to ephemeral wetlands occurred. Stilts exhibited regular inter-island migratory behavior, but coots dispersed in relation to major rainfall events. Seasonal fluctuation recorded for coots by past observers is the result of survey techniques not accounting for seasonal dispersal patterns.

Enregistrement 290 de 688 - BA on CD July-December 1993
TI: Heavy snow and cold mortality of sharp-tailed sparrows and marsh wrens.
AU: GRANT-G-S; KIRBY-SMITH-W
SO: JOURNAL OF THE ELISHA MITCHELL SCIENTIFIC SOCIETY 108(3):145-148
PY: 1992
LA: English
AB: Record heavy snowfall (38 cm) coupled with four days of sub-freezing temperatures drastically reduced the counts of wintering Sharp-tailed Sparrows (Ammospiza caudacuta) and Marsh Wrens (Cistothorus palustris) in a salt marsh on Topsail Island,North Carolina. Population counts of the sparrow and wren rebounded the following winter.

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Enregistrement 298 de 688 - BA on CD July-December 1993
TI: Spatial and temporal variation in reproductive traits of adjacent northern pied flycatcher Ficedula hypoleuca populations.
AU: JAERVINEN-A
SO: ORNIS SCANDINAVICA 24(1): 33-40
PY: 1993
LA: English
AB: Spatial and temporal variation in the number of breeding pairs, site-tenacity of adult females, laying date, clutch size and reproductive success of the Pied Flycatcher was studied in 1987-1989 in two areas 35 km apart in northern Scandinavia and related to weather conditions, plant phenology and predation. One study area was situated in a relatively productive and mild forest zone (Skibotn, 69 degree 20'N), the other further south in a harsh zone of mountain birch forest (Kilpisjarvi, 69 degree 03'N). The hypothesis of no spatial difference was rejected for number of pairs, site-tenacity, laying date, clutch size and breeding success. Both areas showed considerable between-year variation in several breeding variables. At Skibotn, egg-laying started 7 d after birch-leafing; at Kilpisjarvi, 5 d before.Birch-leafing occurred 18 d earlier at Skibotn than at Kilpisjarvi, to be compared with the difference of only 6 d inlaying date. At Skibotn, clutch size averaged 6.2 and number of fledgings per nest 3.6; at Kilpisjarvi 5.5 and 2.9. At Kilpisjarvi, breeding success seemed to be limited by cold weather; at Skibotn by predation. Site-tenacity of adult females was relatively low in both ares: 5% at Skibotn and 11% at Kilpisjarvi.

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Enregistrement 301 de 688 - BA on CD January-June 1994
TI: Winter starvation in captive common barn-owls: Bioenergetics during refeeding.
AU: Handrich-Y; Nicolas-L; Le-Maho-Y
SO: Auk 110(3): 470-480
PY: 1993 (1994)
LA: English
AB: The bioenergetics of eight captive Common Barn-Owls (Tytoalba alba) acclimated at 5 degree C were studied during the restoration of a 30% reduction in body mass following a period of total food deprivation. The eight-day period during which body mass was restored (Refeeding I) was compared with a five-day prefasting period (Feeding), corresponding to steady body mass and a six-day period (Refeeding II) of stabilization at a new steady state. Food was given ad libitum throughout the feeding periods. During Refeeding I, the rate of increase in body mass(13.9 +- SD of 1.0 g/24 h in females and 9.2 +- 0.8 g/24 h in males) was close to the maximum value for growth of captive or wild owlets. It was achieved by a 1.63-fold increase in gross energy intake and daily metabolized energy, respectively, of 370+- 42 and 275 +- 31 kJ/d during Feeding. In contrast to the clear increase in food assimilation efficiency observed in other species during refeeding, the high rate of energy intake and body mass restoration in the Common Barn-Owl was associated with only a slight increase in assimilation efficiencies: 52.0 +- 2.2%versus 49.1 +- 1.0% during Feeding for dry mass; and 75.5 +- 1.1%versus 74.1 +- 0.6% for energy. This slight increase could only be attributed to a reduction of the energy lost in pellet production (i.e. to a higher effectiveness in gastric digestion).The energetic cost of daily change in body mass was estimated in both sexes and both feeding periods, and appeared to be constant(10.8 +- 1.1 kJ/g fresh body mass). Using this value, the part of the daily metabolized energy invested in the existence metabolism was calculated. After four days of refeeding, existence metabolism paradoxically appeared similar or even higher than before fasting, while the body mass was still lower than the initial value. Thus, in contrast to the laboratory rat (Rattus norvegicus) or humans, the Common Barn-Owl is unable to enhance restoration of body reserves by minimizing existence requirements when refed ad libitum after a period of starvation. This might be partly due to the maintenance of a high locomotor activity throughout starvation and refeeding.

Enregistrement 302 de 688 - BA on CD January-June 1994
TI: Winter starvation in captive common barn-owls: Physiological states and reversible limits.
AU: Handrich-Y; Nicolas-L; Le-Maho-Y
SO: Auk 110(3): 458-469
PY: 1993 (1994)
LA: English
AB: Among birds, the Common Barn-Owl (Tyto alba) is considered to be particularly sensitive to winter-induced starvation. Yet,there are no detailed data on the metabolic response of this species to long-term food deprivation in the cold. Therefore,eight captive Common Barn-Owls (T. a. alba), including both males and females, were fasted at 5 degree C ambient temperature, until there was a clear increase in the rate of body mass loss. In wild birds, which fast spontaneously, such an increase (reflecting increased protein utilization) is associated with a triggering of refeeding that anticipates a lethal depletion in body fuels.Weighing the barn-owls every 8 h and collecting excreta for 24-h periods, we found that even after only 0.7 day of starvation,body-mass and nitrogen loss reached low and constant values (at 8.6 +- SD of 1.0 and 0.17 +- 0.01 g/day, respectively), which were maintained for 7.2 +- 1.6 days. This was calculated to correspond to energy equivalents of body-mass loss and daily energy expenditure of 24.3 +- 1.9 kJ/g and 213 +- 22 kJ/day,respectively. Based on these data, the contribution of proteins to energy expenditure was as low as 8.7 +- 1.6%. In contrast to what could be expected, when compared to the prefasting level,mean daily energy expenditure per unit body mass was not significantly reduced. Presumably, this was due to the maintenance of a high locomotor activity during the first part of the night, as revealed by a rate in body mass loss two-fold higher than during the light phase. The fast was stopped after 1.3 +- 0.1 days of increased body-mass loss. The shift to an increased protein utilization was indicated by a 3.5-fold rise in nitrogen excretion associated with a rise in plasma uric-acid concentration from 0.34 +- 0.08 mmol/L up to 1.75 +- 0.13, and a drop of plasma free fatty acids from 1.3 +- 0.3 mmol/L to 0.11 +-0.10. Despite the initially heavier females, this metabolic shift occurred simultaneously after 7.9 +- 1.7 days of starvation for both sexes. Accordingly, at the time of refeeding, the females weighed 240.0 +- 5.0 g and the males 217.8 +- 7.2 g (i.e. the initial difference in body mass was maintained). At this time,the barn-owls were still able to fly and refeed by themselves.However, based on data for wild Common Barn-Owls that presumably died from starvation, it can be estimated that the rise in nitrogen loss precedes death by less than 2.5 days.

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Enregistrement 309 de 688 - BA on CD January-June 1994
TI: Variation in the energy intake of captive oystercatchers Haematopus ostralegus.
AU: Goede-A-A
SO: Ardea 81(2): 89-97
PY: 1993
LA: English
AB: The food intake of captive Oystercatchers Haematopus ostralegus was measured, and with an estimated utilization efficiency, the energy uptake from the ingested food calculated.Annual, seasonal and weekly variations in energy intake were observed, together with variations related with the type of food offered. The variations in intake are related with the variable requirements of the maintenance metabolism and with changes in body mass. In a period with low ambient temperatures including a prolonged cold spell, the energy input by the food intake and use of body reserves could not meet the requirements of the maintenance metabolism as calculated. The strategies the birds may have used to balance the budget of energy provisioning and energy expenditure in these circumstances, are discussed. The weeks with high energy intake in the period of pre-winter body mass gain, seem to coincide with full moon and probably reflect nocturnal feeding. The differences in food intake related with the type of food are attributed to palatibility of the food.

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Enregistrement 361 de 688 - BA on CD January-June 1994
TI: Roost site selection and the waking and roosting behaviour of Mynas in relation to light intensity.
AU: Nee-K; Yen-Y-Y-V
SO: Malayan Nature Journal 46(3-4): 255-263
PY: 1993
LA: English
AB: In a suburban habitat, both Common Mynas Acridotheres tristis and White-vented Mynas A. javanicus appear to select roost trees which are characterised by dense foliage, possibly for protection against rain, wind or radiative heat loss. The waking and roosting patterns of both species of myna were similar. The times of first departure of birds and times of arrival of half the number of birds in the roost were significantly correlated with morning civil twilight and evening sunset times, respectively. Birds wake and depart at lower light intensities than those at which they return to the roost. Roost departures occur within a narrower range of light intensities than roost arrivals, and roost break-ups occur more quickly than roost assembly.

Enregistrement 379 de 688 - BA on CD January-June 1994
TI: Exceptionally high numbers of inland Oystercatchers during the winter of 1992/93.
AU: Hulscher-J-B; De-Jong-J; Van-Klinken-J
SO: Limosa 66(3): 117-123
PY: 1993
LA: Netherlandish
AB: In the winter of 1992/93 unusually large numbers of Oystercatchers were seen on many inland locations in Friesland and Groningen, the two Dutch provinces that border the Wadden Sea. The available feeding time in the Wadden Sea during low tide was shorter than the time required to match the daily food requirements, due to strong winds resulting in raised water levels in November and the first half of December 1992, and again in January 1993. The birds were forced to make up for their supply deficiencies with terrestrial food, foraging on inland areas nearby. Inland feeding was probably facilitated by above average precipitation and relatively high temperatures, both raising the availability of earthworms, the main prey species taken. The long-lasting spells with abnormally high temperatures in November may have triggered an early return to the breeding areas in at least some of the birds. Excessive commercial fishing effort has reduced the abundance of cockles and mussels, usually the staple food of Oystercatchers in the Wadden Sea in winter, during the last three years. Consequently, the winter population of Oystercatchers in the Wadden Sea has decreased. Birds that remained to winter in the Wadden Sea have probably switched to other types of prey, with smaller size and occurring in lower densities. Presently the birds need more time to collect the same amount of food than in times when they mainly feed on cockles and mussels. Generally, the birds get in trouble when strong winds prevent sufficiently long exposure of the Wadden Sea feeding areas, because the inland feeding conditions are not suitable in regular winters. In the mild winter of 1992/93 Oystercatchers were lucky.

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Enregistrement 394 de 688 - BA on CD January-June 1994
TI: Metabolic rate and evaporative water loss of Mexican Spotted and Great Horned owls.
AU: Ganey-J-L; Balda-R-P; King-R-M
SO: Wilson Bulletin 105(4): 645-656
PY: 1993
LA: English
AB: We measured rates of oxygen consumption and evaporative water loss (EWL) of Mexican Spotted (Strix occidentalis lucida) and Great Horned (Bubo virginianus) owls in Arizona. Basal metabolic rate averaged 0.84 ccO-2 cntdot g-1 cntdot h-1 for the Spotted Owl and 0.59 ccO-2 cntdot g-1 cntdot h-1 for the Great Horned Owl, with apparent thermoneutral zones extending from 17.0-25.2 degree C for the Spotted Owl and 20.3-32.2 degree C for the Great Horned Owl. EWL increased exponentially with ambient temperature in both species, but the Great Horned Owl showed a greater ability to dissipate metabolic heat production at high temperatures than did the Spotted Owl. Body temperature of Spotted Owls was significantly higher above than below the upper critical temperature (25.2 degree C), whereas body temperature of Great Horned Owls did not differ significantly with ambient temperature. Gular flutter was first observed in Spotted Owls at 30 degree C and in Great Horned Owls at 37 degree C. The lower ability of the Spotted Owl to dissipate heat via evaporative cooling may partially explain its tendency to use habitats featuring cool microsites.

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Enregistrement 399 de 688 - BA on CD January-June 1994
TI: Growth rate, condition and survival of Red Grouse Lagopus lagopus scoticus chicks.
AU: Moss-R; Watson-A; Parr-R-A; Trenholm-I-B; Marquiss-M
SO: Ornis Scandinavica 24(4): 303-310
PY: 1993
LA: English
AB: An index of condition was developed for wild Red Grouse chicks aged 10-30 days. This was derived from the difference between the observed weight and that expected from the chick's age, or stage of feather development. To measure it, the Chicks needed to be caught only once. Variations in condition among different broods of wild chicks were greater than variations among broods of captive chicks in the same years, probably because the wild chicks' environment was harsher and more variable. Within years, the condition of wild chicks was not related to their brood size. Among years, mean condition was correlated both with breeding success and with the biomass of green heather food available in spring. This was because the chicks' condition and survival were poor for two years following an episode of severe weather damage to the heather.

Enregistrement 400 de 688 - BA on CD January-June 1994
TI: Data on the breeding biology of the swift, Apus apus, in Romagna (N Italy).
AU: Ciani-C
SO: Rivista Italiana di Ornitologia 62(3-4): 171-177
PY: 1992
LA: Italian
AB: From 1983 to 1991, the author studied a colony of Apus apus,breeding in province of Forli (Romagna). Brief ethological remarks are made on the preparation of the nests and on the influence of the winds on the choice of a wall for nest building.From the recorded statistics it was found that the average size of the clutch at the time of laying is 2,5 eggs. The 531 clutches examined were composed as follows: 3 eggs 59.4%; 2 eggs 34,3%; 1 egg 3,3%; 4 eggs 3%. The brooding time is intermediate between that of Great Britain (19,6 days) and that of Czechoslovakia(21,7 days). The main losses among the clutches occurred during incubation. The removal of the eggs from the nest by the adults was also observed. The rate of hatching (78%) was almost identical to the one quoted by Lack (1973), the average size of the clutch at hatching was 2,33 chicks. The average time that the chicks remained in the nest (39,5 days) was similar to that of the English nesting chicks, but differed considerably in the maximum period observed, at least 14 days shorter: this is probably due to the worse climatic conditions in the more northern latitudes. The percentage of eggs producing fledging young amounts to 58% of Great Britain and 76,5% in Romagna; there productive success rate is 2,25 young per couple. The successful outcome of the brood is not dependent on the number of chicks which it comprises: clutches of 4 chicks or of one chick are weaned in the same average time as it is needed by the rest of the colony.

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Enregistrement 413 de 688 - BA on CD January-June 1994
TI: Time of breeding, breeding success and chick growth in south Polar Skuas (Catharacta maccormicki) in the Eastern Larsemann Hills, Princess Elizabeth Land, East Antarctica.
AU: Wang-Z; Norman-F-I
SO: Notornis 40(3): 189-203
PY: 1993
LA: English
AB: Details are given of the breeding phenology, breeding success and growth of chicks, obtained during the 1989/90 summer in a small population of South Polar Skuas nesting in the Larsemann Hills (69 degree 21'S, 76 degree 00'E), Princess Elizabeth Land, east Antarctica. Eggs were laid from mid-November to mid- December (mean date 30 November), chicks hatched from mid-December to early January (mean date 26 December) and fledged from 5 February onwards (mean date 16 February). Breeding success in the 13 regularly monitored nests averaged 0.5 chicks fledged per pair, i.e. 0.26 per egg laid. A synchronous hatching resulted in most first chicks (from first eggs) dominating their siblings;they grew faster and survived better than the second chicks,presumably as the result of more food. Second eggs were significantly smaller than first eggs, and egg size and volume gave rise to slight differences in mass at hatching; this did not appear to influence chick growth. Food availability, unfavourable weather conditions and predation by other skuas were the main factors influencing chick growth and successful chick rearing;the presence of sibling aggression may have reduced survival in second chicks. Breeding success in the Larsemann Hills is considered in relation to foods available from feeding territories or from station refuse; in the small samples available, those pairs with obvious territories or with access to refuse produced more chicks to the flying stage.

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Enregistrement 453 de 688 - BA on CD January-June 1994
TI: An invasion of nesting Cattle Egrets Bubulcus ibis in France in 1992.
AU: Marion-L; Brugiere-D; Grisser-P
SO: Alauda 61(3): 129-136
PY: 1993
LA: French
AB: Cattle Egrets bred in France in 1989 at least two sites outside the traditional one of the Camargue. During 1992 some 100 pairs bred at thirteen non-traditional sites, from the Pyrenees to the Somme and from the Atlantic coast to the Rhone valley.Non-breeding birds were observed at several other sites in France, as well as in Switzerland, Austria, Germany, Belgium,Holland, Denmark, Poland and England. This invasion started on 23 April, due probably to drought and population pressure in central and southern Spain, involving a northward emigration of breeding birds. The first pioneer breeding colonies on the Atlantic coast and in the Dombes between 1981 and 1984 were finished with a dramatic cold spell during January 1985, that also greatly reduced the Camargue population.

Enregistrement 484 de 688 - BA on CD 7/94-12/94
TI: Breeding success of a Lesser Spotted Woodpecker Dendrocopos minor population.
AU: Wiktander-U; Nilsson-S-G; Olsson-O; Stagen-A
SO: Ibis 136(3): 318-322
PY: 1994
LA: English
AB: We made intensive observations of 50 pairs of Lesser Spotted Woodpecker Dendrocopos minor in southern Sweden from 1989 to 1992. Between 7% and 22% of the pairs each year defended a territory but laid no eggs. Overall, 76% of the pairs laying eggs raised fledglings, but this proportion was only 33% in 1991 when the weather was cold and wet. The mean clutch size (5.9) and brood size (4.5) in successful nests did not vary significantly between years. Incubation time was 1 day longer in 1991 (11-12 days) than in 1990 and 1992 (10-11 days). Number of young fledged per nesting attempt (3.5) and per pair (2.7) in the population also varied significantly between years. The initiation of egg laying varied between years but coincided each year remarkably well with the date when oak came into leaf. Breeding success is discussed, and comparisons are made with other hole-nesting species.

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Enregistrement 488 de 688 - BA on CD 7/94-12/94
TI: Factors influencing reproductive success in the Little Owl Athene noctua.
AU: Gassmann-H; Baeumer-B; Glasner-W
SO: Vogelwelt 115(1): 5-13
PY: 1994
LA: German
AB: The population ecology of the Little Owl was investigated during 1978-1992 as part of an orchards conservation program.Data on breeding success has been gathered for 409 Little Owl nesting attempts over a period of 15 years in western Northrhine-Westfalia, Germany. The influence of food supply,hunting area, competitors, predators, size and quality of nesting boxes, age of o, agricultural land use and climatic factors(amount of precipitation) on the parameters clutch size and fledgling success is reviewed based on our original data and published information. A model indicating potential interactions of these factors is presented (Fig. 6). Among climatic factors,timing and amount of rainfall clearly influence Little Owl breeding success. The amount of precipitation in March correlates positively with body mass of breeding females in April, with the number of fledged young (Fig. 1) and with the ratio of fledged young over clutch size (Fig. 2). Higher amounts of precipitation in March seem to result in improved food availability(earthworms) and thus increased mass of the adult owls. Possibly in wet early springs the breeding pairs attain a better physical starting condition that will last over the whole breeding period.In contrast, high amounts of rainfall in May and June result in a lower fledgling success. This is probably due to a moist environment in the nest boxes ("cloacal milieu"), which leads to a higher mortality of young Little Owls.

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Enregistrement 491 de 688 - BA on CD 7/94-12/94
TI: Great Tit fat reserves under unpredictable temperatures.
AU: Bednekoff-P-A; Biebach-H; Krebs-J
SO: Journal of Avian Biology 25(2): 156-160
PY: 1994
LA: English
AB: We tested the effects of unpredictable temperatures on fat reserves in Great Tits Parus major. During one treatment, the temperature was constant at 8.5 degree C. In the other,temperatures fluctuated between 1.5 and 15.5 degree on a 24-h basis, with changes occurring just after lights-out. Residual evening weights were higher during the period of unpredictable temperatures. At the end of the period with unpredictable temperatures, more weight was gained on cold than on warm days.During the unpredictable temperature treatment, birds defecated less while eating the same amount Nightly weight loss depended upon evening weight level, but not upon overnight temperature.Our results suggest that Great Tits use daily temperatures to predict conditions for the following night and that they regulate overnight expenditures to match reserve levels.

Enregistrement 492 de 688 - BA on CD 7/94-12/94
TI: Correlates of clutch desertion by female collared flycatchers Ficedula albicollis.
AU: Wiggins-D-A; Part-T; Gustafsson-L
SO: Journal of Avian Biology 25(2): 93-97
PY: 1994
LA: English
AB: While clutch abandonment in birds is typically thought to be a result of the effects of poor weather, few studies have analyzed the characteristics of abandoning females. Female Collared Flycatchers typically abandon their clutches at low rates (average 8% over 4 years) and most do not attempt tore-nest in the same breeding season. Here we analyze clutch desertion data from five breeding seasons, including one season with particularly high desertion rates (23%). In most years,clutch desertion was associated with late Desting and (independent of date) with small clutch size. In addition,subsequent return rates were significantly lower for birds that deserted their clutches. During a particularly poor weather season, females that deserted their clutches were in poor body condition, relative to females that hatched young. We suggest that the decision to desert the clutch is typically made by low-quality parents with low energy reserves and poor prospects for offspring production.

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Enregistrement 541 de 688 - BA on CD 7/94-12/94
TI: Avian community dynamics are discordant in space and time.
AU: Boehning-Gaese-K; Taper-M-L; Brown-J-H
SO: Oikos 70(1): 121-126
PY: 1994
LA: English
AB: The threat of global climate change challenges community ecologists to predict long-term and continental-scale changes in the structure of ecological communities. However, the vast majority of studies have been done at small temporal and spatial scales. Can conclusions about community dynamics based on small-scale studies be extrapolated to larger spatial and temporal scales? We compared the dynamics of regionally coexisting bird species over different spatial and temporal scales using data from the North American Breeding Bird Survey.We found that such extrapolation is suspect. Bird species that had similar local year-to-year population fluctuations did not have similar long-term population trends. Additionally, species that had similar population dynamics in one region rarely exhibited similar dynamics in the different regions where they occurred together.

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Enregistrement 545 de 688 - BA on CD 7/94-12/94
TI: Effects of microhabitat, flocking, climate and migratory goal on energy expenditure in the annual cycle of Red Knots.
AU: Wiersma-P; Piersma-T
SO: Condor 96(2): 257-279
PY: 1994
LA: English
AB: We quantify seasonal changes in the maintenance energy requirements of Red Knots (Calidris canutus islandica). This subspecies breeds on the tundra of northeast Canada and north Greenland, migrates through Iceland and spends the winter in the coastal regions of western Europe. Maintenance Metabolism(M-maint) is defined as Basal Metabolic Rate plus extra costs for thermoregulation at environmental temperatures below the therinoneutral zone. M-maint of Red Knots resting in different microhabitats was estimated on the basis of measurements with heated taxidermic mounts, which were calibrated with forced convection against postabsorptive live birds resting over a range of air temperatures (i.e., against their Standard Metabolic Rate). Based on a physically realistic regression model for heat loss, we established the relationships between the electric power consumption of the mounts and three critical weather variables affecting dry heat loss: air temperature, wind speed and global solar radiation. Observations of Red Knots' use of different microhabitats (including their occurrence in flocks of different bird density) and orientation into the wind were collected on the wintering and on the breeding grounds. At lower standard operative temperatures on the coastal wintering grounds they foraged in tighter flocks and more often faced into the wind,saving 8% compared to solitary birds standing with their flanks exposed. We then used (1) microhabitat-specific equations, (2)long-term meteorological data sets, and (3) estimates of habitat use and wind orientation of free-living Red Knots at the different locations and times of the year, to reconstruct the seasonal patterns in M-maint, in the field. Average predicted M-maint varied between 2.93 W in January and 1.64 W in August on the Dutch wintering areas. The maximum monthly M-maint, in winter was higher than that reached on the Canadian breeding grounds(2.28 W. or 0.78 times the Dutch January cost) and on the Icelandic staging grounds (2.27 W, or 0.77 times the Dutch cost in January, in spring, and 1.98 W, or 0.68 times , in fall).Based on 31 years of weather data from the Dutch Wadden Sea in the period 1960-1991 (assuming that Red Knots have not changed their behavior), the long-term overwinter average of M-maint was 2.57 W, with an average monthly minimum of 1.87 W and a maximum of 3.05 W. The west-central coast of France, 900 km more to the south, offers energetically cheaper conditions (0.76 times values for the Dutch coast in January) in the nonbreeding season than the

Wadden Sea. If islandica knots moved on to West Africa during the nonbreeding season they would incur a saving of 1.13 W on M-maint and pay an extra 0.13-0.22 W to cover the cost of travel.

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Enregistrement 593 de 688 - BA on CD 1/95-6/95
TI: The 1991 survey and weather impacts on the Peregrine Falco peregrinus breeding population in the Republic of Ireland.
AU: Norriss-D-W
SO: Bird Study 42(1): 20-30
PY: 1995
LA: English
AB: A second partial survey of breeding Peregrines in the Republic of Ireland was undertaken in 1991, duplicating the methodology and areas covered 10 years previously. The survey located 123 occupied territories; when corrected for incomplete coverage a total of 141 was estimated, an increase of at least 23-26% since 1981. Birds have also recently spread onto quarries,mainly outside survey areas; these have been surveyed independently. Overall, there were an estimated 350-355 occupied territories in the Republic, 17-18% of which were in quarries.Breeding range is shown to be limited by weather, operating through the interaction of spring rainfall levels, cliff size and cliff orientation. On cliffs gt 36 m high untenanted territories are only found in high-rainfall areas and oriented NW to NE. With decreasing cliff size, the vacancies affect a broader spectrum of cliff orientations, and at lower rainfall levels. Most currently unoccupied natural cliff sites appear to be vacant because of weather limitations, although the data suggest room for continuing expansion among quarry sites. Productivity averaged 1.18 young/territorial pair. While exceptionally wet weather in early April generally had a limited impact on breeding, it initially caused major problems in finding Peregrines and probably led to underestimates of the population in parts of the west.

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Enregistrement 596 de 688 - BA on CD 1/95-6/95 Enregistrement 602 de 688 - BA on CD 1/95-6/95
TI: Are large clutches costly to incubate: The case of the piedflycatcher.
AU: Siikamaki-P
SO: Journal of Avian Biology 26(1): 76-80
PY: 1995
LA: English
AB: The costs of incubation were studied in a population of PiedFlycatchers Ficedula hypoleuca both by gathering non-manipulative data and performing clutch size manipulations in three successive seasons. Enlarging clutch size caused a prolonged incubation and increased hatching failures in every year. The length of incubation did not differ between control and reduced clutches but was extended by 0.8 d in enlarged clutches. The manipulation of clutch size did not affect the weight of incubating females.However, in 1993 the incubation weight of females was negatively correlated with the length of incubation. Adverse spring weather most likely caused the many abnormalities and failures during incubation in 1993. Seven females disappeared and three dead females were found in nest-boxes during the incubation period.Moreover, in six nests one or two eggs were rolled to the rim of the nest cup presumably by the incubating female. All these observations suggest that incubation might be an energetic bottleneck for breeding and thus could be a contributory factor in the determination of clutch size in this species.

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Enregistrement 620 de 688 - BA on CD 1/95-6/95
TI: The response of bird populations to habitat loss.
AU: Dolman-P-M; Sutherland-W-J
SO: Ibis 137(SUPPL. 1): S38-S46
PY: 1995
LA: English
AB: Environmental change through altered climate and land use could have a severe impact on bird populations. Predicting the consequences for the size of bird populations is one of the crucial problems for their conservation. We show how a population model based on the behaviour of individuals can be used to predict the consequences of habitat loss. For a wide range of conditions, loss of either wintering or breeding habitat results in population reduction. The approach is then extended to consider the impact of habitat loss in the wintering area on bird species with complex migratory systems. This shows that'knock-on' effects may occur, so that habitat loss in a wintering area may affect populations which did not initially use that area. The ability to alter migration routes in response to environmental change may be crucial to the future viability of populations. Using a simple model combining genetics and population dynamics, we show that aspects of the biology of a species may affect whether or not its migration strategy is flexible enough to shift in response to habitat change. Some species may be able to adopt new migration routes and avoid the catastrophic consequences of habitat loss in traditional wintering areas; however, other species may lack this flexibility and may suffer severe population declines as a consequence.

Enregistrement 632 de 688 - BA on CD 1/95-6/95
TI: Population changes on constant effort sites 1990-1991.
AU: Peach-W; Baillie-S
SO: Bird Populations 1(0): 126-129
PY: 1993
LA: English
AB: Widespread reports of a dearth of songbirds in 1991 are now confirmed with poor catches of most common species at constant effort ringing sites. Cold, wet weather during June appears to have reduced the numbers of surviving young of most but not all species. Will Peach and Stephen Baillie report.

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Enregistrement 635 de 688 - BA on CD 1/95-6/95
TI: Waterways bird survey: 1989-1990 population changes.
AU: Carter-S; Musty-L
SO: Bird Populations 1(0): 113-116
PY: 1993
LA: English
AB: With another mild autumn and winter giving way to an early warm spring and extending into the hottest year on record with widespread summer drought, contributors to the WBS were again faced with a long dry season. How did Britain's riparian birds fare in this arid '1990 Greenhouse'? Steve Carter and Lynette Musty report.

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Enregistrement 645 de 688 - BA on CD 1/95-6/95
TI: Oxygen consumption rates of adults and chicks during brooding in king quail (Coturnix chinensis).
AU: Pearson-J-T
SO: Journal of Comparative Physiology B Biochemical Systemic and Environmental Physiology 164(6): 415-424
PY: 1994
LA: English
AB: Oxygen consumption rates were measured in chicks (0-17 days of age), and in non-brooding and brooding adults. Brooded chicks maintained a constant oxygen consumption rate at a chamber ambient temperature of 10-35 degree C (0-5 days of age: 2.95 ml O-2 cntdot g-1 cntdot h-1 and 6-17 days of age: 5.80 ml O-2 cntdot g-1 cntdot h-1) while unbrooded chicks increased oxygen consumption rate at ambient temperature below 30 degree C to double the brooded oxygen consumption rate at 25 and 15 degree C for chicks lt 5 days of age and gt 5 days of age, respectively.The mass-specific oxygen consumption rate of breeding male and females (non-brooding) were significantly elevated within the thermoneutral zone thermal neutral zone (28-35 degree C) in comparison to non-breeding adults. Below the thermal neutral zone, oxygen consumption rate was not significantly different.The elevation in oxygen consumption rate of breeding quail was not correlated with the presence of broodpatches, which developed only in females, but is a seasonal adjustment in metabolism. Male and females that actively brooded one to five chicks had significantly higher oxygen consumption rate than nonbrooding quail at ambient temperature below 30 degree C. Brooding oxygen consumption rate was constant during day and night, indicating a temporary suppression of the circadian rhythm of metabolism.Brooding oxygen consumption rate increased significantly with brood number, but neither adult body mass nor adult sex were significant factors in the relationship between brooding oxygen consumption rate and ambient temperature. The proportion of daylight hours that chicks were brooded by parents was negatively correlated with ambient temperature. After chicks were 5 days old brooding time was reduced but brooding oxygen consumption rate was unchanged. Heat from the brooding parent appeared to originate mainly from the apteria under the wings and legs rather than the broodpatch. The parental heat contribution to chick temperature regulation below the chicks' thermal neutral zone is achieved by increasing parental thermal conductance by a feedback control similar to that suggested for the control of egg temperature via the broodpatch. It is concluded that the brooding period is an energetic burden to parent quail, and the magnitude of the cost increases directly with brood number and inversely with ambient temperature during this period. The oxygen consumption rate of brooding parents was 5.80-6.90 ml O-2 cntdot g-1 cntdot h-1 (ambient temperature 10-15 degree C) at night and up to 5.10 ml O-2 cntdot g-1 cntdot h-1 (ambient temperature 18 degree C) during the day, which are 100 and 40% higher than nonbrooding birds, respectively.

Enregistrement 647 de 688 - BA on CD 1/95-6/95
TI: Optimizing fat reserves over the entire winter: A dynamic model.
AU: Bednekoff-P-A; Houston-A-I
SO: Oikos 71(3): 408-415
PY: 1994
LA: English
AB: During winter, energetic expenditure is high, days are short, and food is often scarce. Many small birds cope with winter weather by daily depositing fat reserves approximately equal to the amount of energy they will expend the following night. We modelled fat reserve levels for small birds over a 100-day winter. We assumed that: a) Expected energetic requirement was greatest in midwinter, mimicking long, cold nights. b) Energetic requirement varied around the expected value. c) Food was always available but feeding entailed a predation hazard. We found the following: 1) Under all sets of parameters tested, fat reserve levels through the winter rose and fell with energetic requirement. 2) Optimal fat levels were higher with increased variance in energetic requirement. 3)Predation had virtually no effect on reserve levels unless heavier birds were more at risk, although it had a strong impact on survival rates. 4) The direction of change in requirement and alternative end-of-winter ecological scenarios had little effect on reserve levels. Our results suggest that a small bird should regulate its fat reserves taking into account energetic requirement, environmental variability, and the relationship between mass and predation risk.

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Enregistrement 650 de 688 - BA on CD 1/95-6/95
TI: Trade-offs and constraints on eastern kingbird parental care.
AU: Rosa-S-M; Murphy-M-T
SO: Wilson Bulletin 106(4): 668-678
PY: 1994
LA: English
AB: Ten Eastern Kingbird (Tyrannus tyrannus) nests were observed for 97 h to determine age-related changes in parental care and to identify possible trade-offs and constraints on feeding,brooding, and vigilant behavior. Feeding rate (trips/h) was related positively to nestling age and brood size, but related negatively to amount of time spent vigilant. Per capita nestling feeding rates (trips/nestling/h) were affected most strongly and negatively by brood size, precipitation, and time spent vigilant.Time spent brooding declined as nestlings aged and as air temperature rose, whereas the amount of time spent shading nestlings varied only (inversely) with cloud cover. Vigilance time averaged about 20% of each hour, was independent of age and brood size, but was related negatively to amount of time spent in nestling maintenance (brooding plus shading), the number of feeding trips made to nests, and nest visibility. Weather had major influences on feeding and brooding behaviors, but regardless of other factors, kingbirds appear to reserve time for vigilance. Parental behavior thus reflects the action of a large number of factors that require compromises in the apportionment of time to the feeding, maintenance, and protection of young.

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Enregistrement 660 de 688 - BA on CD 1/95-6/95
TI: Influence of temperature and other factors on the daily roosting times of mourning doves in winter.
AU: Doucette-D-R; Reebs-S-G
SO: Canadian Journal of Zoology 72(7): 1287-1290
PY: 1994
LA: English
AB: From November 1992 to February 1993, observations were made during 30 departures and 30 arrivals at a Mourning Dove (Zenaida macroura) roost in Moncton, New Brunswick, Canada. Our objective was to identify the effect of cold on the timing of roosting flights in this species, a recent addition to the local wintering fauna. The effect of other environmental factors was taken into account by including them, along with temperature, in a multiple regression analysis. Doves left the roost later relative to sunrise (i) on longer days, (ii) on cloudy mornings, (iii) when fewer birds were using the roosts, (iv) on colder mornings, and(v) when winds were high. They returned to the roost later relative to sunset (i) on colder evenings and (ii) in clear weather. Late arrivals on colder days represent an unusual finding. Anatomical and behavioural considerations suggest that Mourning Doves cannot reduce heat loss as substantially as other species; therefore, late arrivals on cold evenings may reflect the more important role of energy gain through extended foraging required to survive the long winter night.

Enregistrement 682 de 688 - BA on CD 1/95-6/95
TI: Growth and energetics of tern chicks from temperate and polar environments.
AU: Klaassen-M
SO: Auk 111(3): 525-544
PY: 1994
LA: English
AB: I compared the energetics of Arctic Tern (Sterna paradisaea) chicks from Spitsbergen and The Netherlands, Common Tern (S.hirundo) chicks and Sandwich Tern (S. sandvicensis) chicks from The Netherlands, and Antarctic Tern (S. vittata) chicks from King George Island. Daily energy expenditure (DEE), measured using doubly-labeled water, was only slightly higher in the chicks from the polar environments, despite the higher levels of basal metabolism (BMR) and higher costs for thermoregulation.Apparently, thermoregulatory cost as part of the DEE of the chick is only a minor item thanks to parental brooding, which may account for energy savings ranging from 40 to 80%. A simple model indicates that the magnitude of these savings is dictated by the parental time budget (i.e. the minimal foraging time needed to meet age-dependent energy requirements of chick). Basal metabolic rate in chicks of the six available studies increased with latitude. The differences could relate to a higher capacity to produce heat, which is necessary in polar environments. The basal-metabolic-rate levels in adult terns, however, do not match this latitudinal pattern for the growing chicks. Ontogenetic studies over a longer time scale would be required to clarify these discrepancies in latitudinal pattern of BMR, for which afunctional explanation is given in terms of differences in migratory biology.

Section 6

Mots-clés: bird and temperature

**Section 6**

Mots-clés: bird and temperature

Enregistrement 160 de 170 - BA on CD 1/95-6/95
TI: Population trends, habitat utilization, and outlook for the future of the sandhill crane in North America: A review and synthesis.
AU: Safina-C
SO: Bird Populations 1(0): 1-27
PY: 1993
LA: English
AB: This paper reviews historical range changes, population trends, and habitat requirements of the Sandhill Crane (Grus canadensis) and broadly predicts future population changes.Although habitat loss and consequent range contraction during the recorded history of North America have been great, Sandhill Cranes in the latter part of the 20th century have benefitted from agriculture and protection, and their numbers have increased impressively. Sandhill Crane numbers are presently high for most populations. However, the ongoing rate of loss of freshwater wetlands and human development of their wintering areas threaten their future. Sandhill Cranes are dependent on shallow, easily-drained marshes for roosting and nesting habitat almost everywhere in their range. This general habitat requirement, which probably evolved as security from predation,is now their vulnerability. Wetland preservation and enhancement are the most important issues in Sandhill Crane conservation.Because Sandhill Cranes gather in large numbers during winter and migration, continued wetland destruction may cause sudden,large-scale population declines. Increasing human populations are draining most of the Sandhill Crane's wintering habitat. At present, only the Rocky Mountain Greater Sandhill Crane population (approximately 3% of the total population) appears secure. Climate changes that make present ranges more arid will be deleterious to cranes, but temperature rise per se ought not,because breeding Sandhill Cranes have adapted to temperature regimes ranging from that of Siberia to that of Cuba. Whether migratory populations will be able to adapt to an altered distribution of suitable wet habitat consequent to climate changes will depend on the rate of habitat change, the crane's rate of adaptation, and altered patterns of human habitat use,which are all unknowns. Ideally, refuges should incorporate and control both wet roosting areas and dry feeding areas, including native meadows and grasslands from which cranes derive protein and essential nutrients.

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Enregistrement 161 de 170 - BA on CD 1/95-6/95
TI: Fasting endurance and cold resistance without hypothermia in a small predatory bird: The metabolic strategy of Tengmalm's owl, Aegolius funereus.
AU: Hohtola-E; Pyornila-A; Rintamaki-H
SO: Journal of Comparative Physiology B Biochemical Systemic and Environmental Physiology 164(6): 430-437
PY: 1994
LA: English
AB: The energetic adaptations of non-breeding Tengmalm's owls (Aegolius funereus) to temperature and fasting were studied duringthe birds' autumnal irruptions in western Finland. Allometric analysis (including literature data and two larger owl species measured in this study) indicates that the basal metabolic rate of owls is below the mean level of non-passerine birds. However,the basal metabolic rate of the 130-g Tengmalm's owl (1.13 W) is higher than in other owls of similar size. This is probably related to its northern distribution and nomadic life history. Relative to its size, Tengmalm's owl has excellent cold resistance due to effective insulation (lower critical temperature + 10 degree C, minimum conductance 0.19 mW cntdotcm-2 cntdot degree C-1). Radiotelemetric measurements of body temperature showed that the level of body temperature is lower than for birds in general ( 39.4 degree C at zero activity) and that the amplitude of the diurnal cycle is also low (0.2-0.6 degree C). In contrast to many other small birds, Tengmalm's owls do not enter hypothermia during a 5-day fast at thermoneutrality or in cold. Moreover, while the metabolic rate per bird shows the expected mass-dependent decrease, the mass-specific rate decreases only slightly during the fast. In line with this, there was no decrease in the plasma triiodothyronine concentration during the fast in the owl,whereas a dramatic drop was observed in the pigeon and Japanese quail that were used as a reference. Despite this, the owl has an excellent capacity for fasting because of its ability to accumulate extensive fat depots and its low overall metabolic rate. Fasting reduced evaporative water loss to 50% of that in the fed state. Calculations show that the oxygen consumption observed in fasting birds would involve a production of metabolic water barely sufficient to compensate for evaporative water loss. The threat of dehydration may thus set a limit to the decrease in metabolic rate in fasting owls (owls rely totally on water either ingested with food or produced metabolically). We conclude that the metabolic strategy in Tengmalm's owl is largely dictated by an evolutionary pressure for fasting endurance. With the restrictions set by small body size and water economy, this bird has apparently taken these adaptations to an

extreme. The constraints that preclude hypothermia, which could increase the capacity for fasting even more, remain unknown.

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Enregistrement 167 de 170 - BA on CD 1/95-6/95
TI: Reproduction constrains the use of daily torpor by free-ranging common poorwills (Phalaenoptilus nuttallii) (Aves:Caprimulgidae).
AU: Csada-R-D; Brigham-R-M
SO: Journal of Zoology (London) 234(2): 209-216
PY: 1994
LA: English
AB: The purpose of this study was to determine if common poorwills ( Phalaenoptilus nuttallii) resist entering torpor during the breeding season. During the summers of 1991 and 1992,we studied poorwills in the Cypress Hills, Saskatchewan, Canada,near the northern limit of their distribution. Since poorwills are monogamous and share incubating and brooding responsibilities, we predicted that the non-incubating or non-brooding bird would enter torpor when stressed energetically(e.g. on cold and/or wet nights). Individuals carrying temperature-sensitive radio transmitters entered torpor significantly less often during the breeding season (two of 195 bird nights) than the non-breeding season (27 of 44 bird nights). During the breeding season we found no birds involvedi n an active nesting attempt in torpor. We conclude that reproduction constrains the use of torpor by adult birds, but why non-incubating and non-breeding birds did not enter remains unclear.

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Enregistrement 169 de 170 - BA on CD 1/95-6/95
TI: Intraspecific and geographical trends in body size of a differential migrant, the Evening Grosbeak.
AU: Prescott-D-R-C
SO: Auk 111(3): 693-702
PY: 1994
LA: English
AB: I examined body-size variation in age and sex classes of the Evening Grosbeak (Coccothraustes vespertinus) to test the hypothesis that differential migration in this species can be explained by the body-size hypothesis. This hypothesis proposes that larger-bodied age and sex classes of migratory species should winter farthest north because body size influences the probability of winter survival. From the known winter distribution of age and sex groups (males wintering farther north than females, but no distributional differences between adults and immatures), I predicted that males should be larger-bodied than females, but that there should be no size differences between age classes of either sex. I also predicted that individuals within age and sex classes should increase in size from south to north during winter. Body size was assessed using multivariate analysis of measurements obtained from 1,739 museum specimens of birds collected throughout the winter range and from 73 live-caught birds wintering in southern Alberta.Males were larger-bodied than females, but adult males and females were larger than immatures of the same sex. A positive(but weak) relationship between body size and latitude occurred only in females. I suggest that females, because of their relatively small size, may be most influenced by climatic conditions occurring on the wintering grounds. The physiological implications of body-size variation (cold tolerance and fasting endurance) must be determined before a full assessment of the body-size hypothesis can be made.

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Enregistrement 25 de 695 - BA on CD January - June 1992
TI: Termination of LH secretion in Japanese quail due to high-and low-temperature cycles and short daily photoperiods.

AU: TSUYOSHI-H; WADA-M
SO: GENERAL AND COMPARATIVE ENDOCRINOLOGY 85(3): 424-429
PY: 1992
LA: English
AB: Mature male Japanese quail were transferred from 16L:8D (19degree) to one of the following combinations of daily light-dark and temperature cycles, 8L:16D (12 hr, 19 degree :12 hr, 9 degree), 12L:12D (12 hr, 19 degree :12 hr, 9 degree ) and 12L:12D (16hr, 19 degree :8 hr, 9 degree ). The low temperature is for the middle of the dark period in each treatment. In the control groups, birds were transferred to the same photoperiodic conditions as the experimental groups, but without changes in ambient temperature. Blood samples were collected every other day for 30 days and circulating levels of plasma LH were estimated byradioimmunoassay. Both the change in conditions from 16L:8D to 8L:16D with the temperature lowered for 12 hr and that from 16L:8D to 12L:12D with temperatures lowered in one case for 12 hr and in the other for 8 hr caused a lowering in plasma LH levels in all the birds to reproductively quiescent levels. The cloacal protrusion of all these birds regressed completely. In control groups, however, most if not all the birds remained in active breeding states although the levels of circulating LH decreased to basal breeding levels of 1-2 ng/ml. The results indicated that in addition to a change from long to short days an alternation of high and low

temperatures was sufficient supplementary information in causing termination of LH secretion and inducing regression of the gonads and the accessory sex organs in this species.

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Enregistrement 26 de 695 - BA on CD January - June 1992
TI: Annual changes in levels of plasma LH and size of cloacal protrusion in Japanese quail (Coturnix coturnix japonica) housed in outdoor cages under natural conditions.
AU: WADA-M; AKIMOTO-R; TSUYOSHI-H
SO: GENERAL AND COMPARATIVE ENDOCRINOLOGY 85(3): 415-423
PY: 1992
LA: English
AB: Japanese quail of the strain used in our laboratory do not show a complete decrease in levels of circulating luteinizing hormone (LH) concentrations and show no collapse of the testes following their transfer from long to short days under laboratory conditions. Thus, merely manipulating photoperiods in the laboratory does not simulate an annual breeding cycle. To see whether an annual breeding cycle does exist in "our" quail under natural conditions, mature male birds were housed in individual cages and placed on the roof of a building at 35 degree 45'N, 139 degree 53'E; day length and ambient temperature were not controlled at all though food and water were continuously supplied. For 16 months blood was collected every week and the area of the cloacal protrusion measured at the time of each blood collection. The results showed that levels of plasma LH and theare a of the cloacal protrusion had a clear annual cycle under the natural conditions. To detect more precisely the changes in circulating LH concentrations during spring and autumn, samples were collected every other day. The first significant increase in levels of plasma pH was found when the day length exceeded 12-12 hr, though the increase was sporadic and not synchronized among individuals. The results also showed that circulating levels of LH declined significantly in early September starting when the day length was still about 14 hr; this downward trend continued rather steadily to nonbreeding levels. The record of ambient temperatures indicated that in early spring there was a fairly constant range of low temperatures despite some fluctuations, and in late summer to early autumn temperatures began to decrease although the daytime levels remained high. These results indicate that (1) under natural conditions our Japanese quail showed clear annual breeding cycles, (2) the increase in plasma LH in early spring was sporadic and not necessarily proportional to the increase in day length, and (3) the decrease in circulating LH in late summer is difficult to explain by a simple photoperiodic mechanism; the results indicate that other factors are involved.Our previous results (Wada et al., 1990, Gen. Comp. Endocrinol,80, 465-472) indicated that the decrease in ambient temperature seems to be the most probable factor causing termination of LH release from late summer to early autumn in this species.

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Enregistrement 45 de 695 - BA on CD January - June 1992
TI: Bird communities and landscape in a Pyrenean valley.
AU: GENARD-M; LESCOURRET-F
SO: GERFAUT 80(1-4): 107-126
PY: 1990
LA: English
AB: Applying a combination of ordination and clustering methods to bird surveys covering a whole mountain valley (in France)allowed us to identify the major landscape units corresponding to avifauna spatial patterns, the associated species groups, and the environmental features responsible for these patterns. Birds first respond to vegetation cover and to a thermic trend, which both bring out three sets among surveys, respectively characterized by forest birds, heaths and copse birds, an grassland birds. Other bird distribution factors (grass cover, soil depth, etc.) refine this landscape design. Birds also respond to horizontal heterogeneity.

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Enregistrement 46 de 695 - BA on CD January - June 1992
TI: Coping with food-limited conditions: Feeding behavior,temperature preference, and nocturnal hypothermia in pigeons.
AU: OSTHEIM-J
SO: PHYSIOLOGY & BEHAVIOR 51(2): 353-362
PY: 1992
LA: English
AB: The adaptive responses to increasing food scarcity were investigated in a closed economy behavioral procedure.Food-limited conditions were stimulated by an increasing fixed ratio (FR) schedule, i.e., an increasing number of key pecks was required to give the pigeons access to a food dispenser. The birds could influence the ambient temperature (Ta) by breaking light beams. The body weight (b. wt.), the deep body temperature (Tb),the selected Ta, the pecks to the food key, and the number of food accesses were continuously recorded. As the FR increased,the pigeons first showed an improvment of the feeling behavior.When this behavioral adaptation failed to maintain a sufficient food intake, the b. wt. of the pigeons gradually decreased and nocturnal hypothermia occurred. Interrelated

to nocturnal hypothermia, the birds changed their Ta preference. Only when their b. wt. had reached approximately 70% of its initial value,the birds increased their feeding activity. At all ranges of food scarcity, the pigeons reached a steady state. The work provides evidence about the way adaptive mechanisms interact within the response complex to food-limited conditions.

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Enregistrement 47 de 695 - BA on CD January - June 1992
TI: Development of thermoregulation in Hawaiian brown noddies (Anous stolidus pileatus).
AU: MATHIU-P-M; DAWSON-W-R; WHITTOW-G-C
SO: JOURNAL OF THERMAL BIOLOGY 16(6): 317-326
PY: 1991
LA: English
AB: Oxygen consumption ( ovrhdot VO-2) and body temperature(T-b) of Hawaiian brown noddies (Anous stolidus pileatus (Aves:Laridae)) during late incubation and in the first 24 h after hatching were measured at ambient temperatures (T-a) between 28 and 38 degree C and between 15 and 43 degree C, respectively.Evaporative cooling by hatchings at T-a of 36-43 degree C was also measured. Throughout the late incubation stages studied,ovrhdot VO-2 and T-b both varied directly with T-a in an ectothermic pattern. The hatchlings successfully regulated T-b at T-a between ca. 29 and 43 degree C. The functional basis of the abrupt increase in thermoregulatory capacity with hatching is discussed.

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Enregistrement 49 de 695 - BA on CD January - June 1992
TI: Behavioural energetics of overwintering in the rifleman,Acanthisitta chloris.
AU: LILL-A
SO: AUSTRALIAN JOURNAL OF ZOOLOGY 39(6): 643-654
PY: 1991
LA: English
AB: The role of behavioral adjustments in meeting increased daily energy requirements in winter was investigated in rifleman,Acanthisitta chloris, inhabiting lowland forest in South I., New Zealand, by comparing their population density, time-activity budget and foraging behavior in autumn and winter. Rifleman foraged for 83% of daytime in both seasons. The combined effects on the birds' winter energy budget of increased thermoregulation costs and the shorter daylength for foraging were at least partly offset by an estimated 23-29% decrease in the amount of energy expended daily on activity and a 78% increment in prey caught per day. The reduced energy expenditure on activity resulted from rifleman spending less time on expensive flying and more time roosting. The increase in prey capture rate may have stemmed from a 35% seasonal reduction in the bird's population density and reduced prey mobility at lower ambient temperatures. Marked sexual size dimorphism was not reflected in gender differences inactivity budgeting or prey capture rate, but the sexes differed in their relative use of foraging substrates. Rifleman showed few seasonal changes in daily activity rhythm or microhabitat use.The behavioral energetic overwintering tactics of rifleman are compared with those of other Australasian and north temperate zone land-birds.

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Enregistrement 54 de 695 - BA on CD January - June 1992
TI: Seasonal differences in food and energy consumption of the black grouse (Lyrurus tetrix L., 1758) as measured within an aviary.
AU: GREMMELS-H-D
SO: ZEITSCHRIFT FUER JAGDWISSENSCHAFT 37(4): 221-231
PY: 1991
LA: German
AB: During the course of a year the maximum body weight of black cocks aged several years was attained at the end of March.Thereafter, continual weight loss during the courting season was observed, reaching a yearly minimum at the end of June. In midsummer the cocks again demonstrate a weight gain which continues throughout the fall and winter months. The yearly minimum in food consumption (pellet feeding) is in August. During the fall months a clear increase in food consumption can be observed attaining a maximum in the winter (February) at a time of very low temperatures. A secondary maximum is in April. In respect to the various food plants available, clear preferences for different plants are shown in summer and winter. The analyzed energy value of the contents of the caeca was clearly higher for all experiments than that of the large intestine, which indicates a selective process in the digestive tract of the black cock. The energy demand based on the metabolizable energy is highest during the coldest periods in winter, followed by a second maximum during courtship in April. The yearly minimum energy demand is in August. Food consumption as well as the metabolizable energy show a clear negative correlation to the daily mean temperature.

Enregistrement 66 de 695 - BA on CD January - June 1992
TI: Proximate factors affecting egg volume in subarctic hole-nesting passerines.
AU: JARVINEN-A
SO: ORNIS FENNICA 68(3): 99-104
PY: 1991
LA: English
AB: Variation in egg volume of the Pied Flycatcher (Ficedula hypoleuca, n = 292 clutches), Restart (Phoenicurus phoenicurus, n= 94), Siberian Tit (Parus cinctus, n = 31) and Great Tit (Parus major, n = 20) was studied in northern Finnish Lapland (Finland)(69 degree N) from 1975 to 1987. Increased female mass and warm temperature around the time of egg-laying increased egg volume.Egg volume was not related to laying date and clutch size.

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Enregistrement 80 de 695 - BA on CD January - June 1992.
TI: Fledgling production of eiders Somateria mollissima in The Netherlands.
AU: SWENNEN-C
SO: JOURNAL FUER ORNITHOLOGIE 132(4): 427-438
PY: 1991
LA: English
AB: For 28 years, the survival up to fledging of Eider ducklings has been determined in the Dutch colony on Vlieland. On average 0.342 (0.001-1.528) ducklings per female fledged yearly. Within the ranges observed, the total number of ducklings that fledged seemed to be independent of the number of breeding females (range 800-2700) and the number of Herring Gulls in the study period.Indications were found of a sex-linked mortality occurring in some years. Correlations with a number of environmental factors suggested that low temperature in winter, high temperature at the end of May and the beginning of June, calm weather in May and June, and a high number of Herring Gulls were profitable for fledgling success. However, a stepwise multiple regression indicated only the temperature at the beginning of June as significant, explaining about 18% of the total variance. The absence of a negative relation with breeding gull numbers confirms the interpretation of the role of the Herring Gull as a secondary mortality factor. Experiments showed that Goose Virus Hepatitis (syn. Goose Influenza or Goose Pest) was a primary cause of mortality among ducklings older than one week. The effect of diseases in the field was difficult to establish as diseased and weakened ducklings were usually eaten by gulls. Along-lasting fledgling failure was recorded from 1966 up to and including 1977. In the same period changes were noted in the biological systems in the North Sea.

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Enregistrement 93 de 695 - BA on CD January - June 1992
TI: Activity patterns of Nearctic dabbling ducks wintering in Yucatan, Mexico.
AU: THOMPSON-J-D; BALDASSARRE-G-A
SO: AUK 108(4): 934-941
PY: 1991
LA: English
AB: We spent 1,173 h determining the activity patterns of Blue-winged Teal (Anas discors), Northern Shovelers (A.clypeata), Northern Pintails (A. acuta), and American Wigeon (A.americana) in Yucatan, Mexico, from October to March, 1985 to 1988. Feeding (30-50%), locomotion (20-37%), and resting (13-28%)were the dominant behaviors of all species. Preening occurred 4-11%, and ducks spent lt 4% combined in courtship, comfort,altert, and aggression. Activity patterns generally did not differ within or among species over four phenological time periods during winter, and were similar in the sexes and throughout the day. Activities were similar in all open-water habitats but changed when birds used red mangroves (Rhizophora mangle), where resting and preening became dominant. Mild temperatures throughout winter nearly eliminated thermal stress as species spent only 0.04-4.2% of time below their lower critical temperature. We argue that lack of thermal stress increased flexibility in activity patterns and potentially caused the lack of daily, seasonal, and interspecific changes inactivity budgets. Such increases in behavioral flexibility and overall energy conservation are probably two major benefits accrued by dabbling ducks wintering in the Neotropics.

Enregistrement 102 de 695 - BA on CD January - June 1992
TI: Monitoring starvation risk: Adjustments of body reserves in greenfinches (Carduelis chloris L.) during periods of unpredictable foraging success.
AU: EKMAN-J-B; HAKE-M-K
SO: BEHAVIORAL ECOLOGY 1(1): 62-67
PY: 1990
LA: English
AB: Foragers can put on fat as an energy reserve to reduce the risk of starvation. Reserves are necessary to survive periods when energy intake is impossible, and additional reserves can serve as a buffer against periods of little success when foraging is unpredictable; however, maintaining the maximum possible body reserves may be detrimental when measured against a cost of carrying fat. Experiments with greenfinches (Carduelis chloris L.) showed that the birds maintained reserves below the level permitted by food availability. Greenfinches reduced body reserves when exposed to lower metabolic requirements and predictable foraging success; reserves were increased when ambient temperature was lowered or foraging success was made more unpredictable. The response to unpredictability was state-dependent. Fatter birds increased their reserves less. The adjustments of energy reserves according to requirements and environmental predictability suggest that it is costly to carry fat and that this cost is balanced against the benefits of carrying body reserves as an insurance against starvation.

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Enregistrement 109 de 695 - BA on CD January - June 1992
TI: Metabolic responses to flight and fasting in night-migrating passerines.
AU: JENNI-EIERMANN-S; JENNI-L
SO: JOURNAL OF COMPARATIVE PHYSIOLOGY B BIOCHEMICAL SYSTEMIC AND ENVIRONMENTAL PHYSIOLOGY 161(5): 465-474
PY: 1991
LA: English
AB: 1. Small passerine migrants achieve endurance flight while fasting, together with one of the highest mass-specific energy rates. Metabolic responses to flight and fasting were examined in three species of free-living migrants. (Sylvia borin, Ficedula hypoleuca, Erithacus rubecula) by measuring plasma concentrations of glucose, uric acid, triglycerides, glycerol, free fatty acids (FFA), and beta-hydroxybutyrate (beta-OHB) in three main physiological situations (feeding, overnight fasting, nocturnal flight) and while changing between these situations. 2.Overnight-fasted birds showed low triglyceride and uric acid levels. Contrary to mammals, FFA and glycerol levels were not increased in agreement with published data on birds. The transition from feeding to fasting (post-feeding) was distinguished by a temporary rise in FFA and a drop in glucose levels. 3. Birds utilize fat during migratory flight, indicated by high levels of FFA, glycerol, and beta-OHB. For the first time, high triglyceride levels were found in an exercising vertebrate. The use of protein during flight was demonstrated by high uric acid levels. 4. Birds kept inactive after flight showed a more pronounced reduction of the fat and protein utilization and post-exercise ketosis than naturally landed birds. 5.Differences among the three species in the metabolic pattern suggest that the garden warbler shows the greatest metabolic adaptation to endurance flight, having the highest levels of fat metabolites and the highest body fat reserves.

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Enregistrement 111 de 695 - BA on CD January - June 1992
TI: Effects of environment and hunting on body condition of nonbreeding gadwalls (Anas strepera, Anatidae) in southwestern Louisiana.
AU: GASTON-G-R
SO: SOUTHWESTERN NATURALIST 36(3): 318-322
PY: 1991
LA: English
AB: Body condition of nonbreeding gadwalls (Anas strepera) in southwestern Louisiana was estimated from hunter-killed birds from 1985 to 1989 to determine chronology of establishment of lipid reserve and relationships among body condition,environmental variables, and disturbance from hunting. The most significant increases in lipid reserves occurred when hunting was suspended, which implied that hunting affected establishment of lipids. Daily low temperatures also were closely correlated with lipid reserves, suggesting that covariants of temperature (e.g.,food availability, food quality, density of shelter vegetation)affected lipid establishment as well. Several alternative hypotheses are proposed to explain results, which provide direction for future studies.

Enregistrement 125 de 695 - BA on CD July - December 1992
TI: Size comparison of resident and wintering American kestrels in south-central Florida.
AU: LAYNE-J-N; SMITH-D-R
SO: JOURNAL OF FIELD ORNITHOLOGY 63(3): 256-263
PY: 1992
LA: English
AB: Body mass and six linear measurements of resident (Falco sparverius paulus) and wintering (F. s. sparverius) American Kestrels in south-central Florida were compared. Sex differences in size and variability (coefficient of variation) were somewhat greater in sparverius than paulus. Means of body mass of paulus males and females were 21.9% and 25.8% less than those of corresponding sexes of sparverius, and means of all linear measurements except culmen length were significantly (P lt 0.05)smaller in one or both sexes of paulus. Although the smaller size of kestrels in the southeastern U.S. follows Bergmann's rule, the size difference might be related to smaller prey size as well as thermoregulatory factors. Measurements of presumed resident kestrels from Florida, Louisiana and Mississippi suggest a north-south trend of decreasing size, but the data are inadequate for detailed geographic comparison. The general similarity of coefficients of variation of measurements of sparverius and paulus is interpreted as evidence of no, or a low level of,interbreeding in the study area even though paulus is greatly outnumbered by wintering sparverius and individuals of the two subspecies may occur in close proximity during a major part of the paulus breeding season.

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Enregistrement 143 de 695 - BA on CD July - December 1992
TI: Responses of herring gulls Larus argentatus and common gulls Larus canus to warm years: Early migration and early breeding.
AU: KILPI-M
SO: ORNIS FENNICA 69(2): 82-87
PY: 1992
LA: English
AB: Monitoring of two breeding colonies in 1983-1991 indicated that both Herring Gulls and Common Gulls altered their migration schedule and time of breeding in very early springs (1989 to 1991). The data of the ice-break-up dates varied during the study period, the maximum difference between dates being 96 days. There was a trend towards an earlier break-up in 1983-1991, and the break-up dates correlated with the maximum ice-cover in the Baltic, reflecting the general severity of the winter. The Herring Gulls occupied the breeding colony up to 54 days earlier in the earliest spring (1990) than in late springs, the Common Gulls 26 days earlier. Early arrival was followed by early breeding. The maximum difference between years in the initiation of the first nest was 23 days in the Herring Gull and 11 days in the Common Gull. The response to a warm year is more pronounced with regard to the timing of migration and colony occupancy, than with regard to the timing of laying. As only one group of breeding birds was monitored for each species, the data suggest that individual adults are able to alter their migration behaviour from year to year. The Herring Gulls were behaviourally more plastic than the Common Gulls. This may be due to the wintering strategy; Herring Gulls stay chiefly within the Baltic and are probably able to monitor the meteorological conditions more readily than Common Gulls which migrate outside the Baltic area.

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Enregistrement 159 de 695 - BA on CD July - December 1992
TI: Time-dependent thresholds for torpor initiation in the rufous hummingbird (Selasphorus rufus).
AU: HIEBERT-S-M
SO: JOURNAL OF COMPARATIVE PHYSIOLOGY B BIOCHEMICAL SYSTEMIC AND ENVIRONMENTAL PHYSIOLOGY 162(3): 249-255
PY: 1992
LA: English
AB: Three models for torpor initiation were tested in rufous hummingbirds (Selaphorus rufus) during moult, when these birds appear to avoid the use of torpor. In model 1, the level of energy reserves at which torpor is initiated (the "threshold")remains constant throughout the night. In model 2, the threshold declines throughout the night, at a constant rate equivalent to the rate at which energy reserves are depleted during torpor. In model 3, the threshold declines at a rate equivalent to the rate of energy reserve depletion during torpor for most of the night,but at a higher rate (corresponding to the rate of energy expenditure during normothermia) during the final 2 h of the night, when these birds are usually normothermic. Model 1 predicts the most frequent and longest bouts of torpor, whereas model 3 predicts the fewest and shortest bouts. To determine the thresholds for each of 12 birds, food supply was manipulated to induce entry into torpor at different times on successive nights.Threshold slopes matched the predictions of model 3 most closely.Calculations comparing observed incidence of torpor with the predictions of model 1 show that the actual, time-dependent threshold for torpor initiation resulted in a 72% reduction in the number of torpor bouts compared with the number of torpor bouts that should have been initiated by a constant threshold.The advantage of a time-dependent threshold is that, although torpor is initiated when needed to prevent energy reserves from falling below a critical level,

the amount of time spent in torpor can be minimized. This may be especially important to rufous hummingbirds during the spring moult, because lowered metabolic rates during torpor probably result in decreased rates of feather replacement during the moult and may thus have consequences for thermoregulation, territorial defense, and timing of the spring migration.

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Enregistrement 160 de 695 - BA on CD July - December 1992
TI: Oxygen consumption and acid-base balance during shallow hypothermia in the pigeon.
AU: JENSEN-C; BECH-C
SO: RESPIRATION PHYSIOLOGY 88(1-2): 193-204
PY: 1992
LA: English
AB: In pigeons, during shallow nocturnal hypothermia induced by food deprivation, body temperature falls to values between 35 degree C and 38 degree C. Body temperature, oxygen consumption,and arterial blood pH and P-CO-2 were recorded during the entrance into such nocturnal hypothermic periods. In vivo pH was kept constant, while in vivo P-CO-2 increased slightly during hypothermia. This caused the temperature-corrected value of pH (pH*, measured at 40 degree C) to fall by -0.014 units/ degree C,and the total CO-2-content to rise by 3.2 mM, an increase of 16%.These changes in the acid-base balance represent, in effect, a respiratory acidosis that closely parallels the normal buffer line for pigeons. Q-10 values, relating oxygen uptake to body temperature, were higher than 4.0 at the very beginning of the entrance into hypothermia, indicating that the metabolic rate was actively inhibited. However, the present results do not indicate any relationship between the acidosis and the inhibition of the metabolic rate.

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Enregistrement 165 de 695 - BA on CD July - December 1992
TI: Daily torpor in a free-ranging goatsucker, the common poorwill (Phalaenoptilus nuttallii).
AU: BRIGHAM-R-M
SO: PHYSIOLOGICAL ZOOLOGY 65(2): 457-472
PY: 1992
LA: English
AB: Numerous laboratory studies show that common poorwills (Caprimulgidae: Phalaenoptilus nuttallii) are capable of entering daily torpor when deprived of food. Using temperature-sensitive radio transmitters, I measured the skin temperature of free-ranging birds under natural conditions to test three hypotheses about the use of torpor by poorwills. I predicted that(1) poorwills would enter torpor only in "energy emergencies"(defined as birds with low body mass), (2) only the non incubating or brooding member of a pair would use torpor during the breeding season, and (3) poorwills would be less likely to enter torpor on moonlit nights when longer periods of activity can be sustained.My results show that adult poor-wills of both sexes enter torpor regularly in April, May, and September, but not during the breeding season. I found no evidence that torpor was used only in energy emergencies or that the lunar cycle influenced the use of torpor. Skin temperatures regularly dropped below 10 degree C and in one instance fell below 3 degree C. On one occassion an individual bird remained torpid for at least 36 h. I found limited evidence suggesting that the temperature at twilight, but not insect abundance, can be used to predict whether birds will remain active or enter torpor.

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Enregistrement 170 de 695 - BA on CD July - December 1992
TI: Variation in time and energy budgets of breeding wheatears.
AU: MORENO-J; HILLSTROM-L
SO: BEHAVIOUR 120(1-2): 11-39
PY: 1992
LA: English
AB: We examined the sources of variation in time allocation of males and females of the wheatear (Oenanthe oenanthe) on the island of Oland, South Sweden, throughout the breeding season. We quantified rates of prey capture attempts and specified foraging methods used. From respirometric measurements of basal metabolic rate and temperature-dependent metabolism on captive wheatears,and after having made certain assumptions about the costs of different activities, we estimated the energy budgets of both sexes during the different reproductive phases. Males and females differed in their time allocation and foraging rates during prelaying, laying, and incubation, but not while feeding grown nestlings. During prelaying and laying, females foraged at higher rates than males; they also perched less often, gleaned more on the ground, and flew less. Although incubation was the least costly phase for females because of their low activity, high foraging rates yet indicated that this phase may represent an energetic bottleneck as a result of restrictions on foraging time. After incubation, females switched from foraging mostly on the ground during early breeding phases to hunting from elevated perches during later breeding phases. The shift in foraging behavior corresponds to the drastic changes in time allocation.Relatively high daily energy expenditures (DEE) by brooding females coupled with low foraging rates may explain the observed posthatching body mass losses. In both sexes, high required energy acquisition rates when feeding large nestlings indicate that parent wheatears then may encounter

another energetic bottleneck. Postfledging was the least costly phase because,compared with the period of feeding nestlings, there were reduced thermostatic costs and a marked drop in flight time. Males and females had similar DEEs during prelaying, laying and nestling feeding, but females had lower needs during incubation. The elective components of energy budgets during nestling feeding, as well as the estimated sum of the elective components throughout the season, were 12% higher for males than for females. The elective components of the energy budgets varied more than the obligatory components (basal + thermoregulation), especially in females, and were more important in determining the variation of DEE throughout the breeding season. A validation study with doubly labeled water indicated that the energy budget model used was accurate enough for comparisons between sexes or breeding phases,but not for measuring individual variation.

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Enregistrement 173 de 695 - BA on CD July - December 1992
TI: Water and energy limitations on flight duration in small migrating birds.
AU: CARMI-N; PINSHOW-B; PORTER-W-P; JAEGER-J
SO: AUK 109(2): 268-276
PY: 1992
LA: English
AB: We examined the physiological limitations to flight duration in small migrating birds with a computer-simulation model. Given preflight body mass, fat and water contents, and flight-path meteorological data, we calculated water and energy budgets and possible flight time. The model can be applied to birds of any size that migrate by flapping flight. As an example, we simulated the flight of small Palearctic passerines (body mass = 10 g)during their annual migration over the Sahara desert (ARFRICA).Sensitivity analysis of model input variables indicated that oxygen extraction and expired air temperature are the most important physiological variables in a bird's water budget and can profoundly influence flight duration. This manifests the importance of: (1) efficient cooling in the nasal passages of flying birds; and (2) the choice of flight altitude (which affects both ambient air temperature and expired air temperature). The model predicted that: (1) Prior to migration,these birds must have stored fat comprising at least 22% of their initial body mass; otherwise, they cannot complete their journey.(2) In relatively fat birds (stored fat gt 0.22 body mass),dehydration rather than energy will limit flight duration. (3)Birds should fly at an altitude not exceeding 1,000 m to cross the Sahara succesfully. (4) Even in low-flying fat birds, flight duration will be limited by their stringent water budget. The model further predicted that small passerines cannot cross the Sahara in a 30- to 40-h nonstop flight, as commonly accepted, but should confine flying to the cooler hours (i.e. nights) and rest during the day in order to avoid elevated rates of water loss due to higher ambient air temperatures. Available data and observations of birds trapped at stopover sites in the Sahara support these predictions.

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Enregistrement 174 de 695 - BA on CD July - December 1992
TI: Ecology and energetics of sanderlings migrating to four latitudes.
AU: CASTRO-G; MYERS-J-P; RICKLEFS-R-E
SO: ECOLOGY 73(3): 833-844
PY: 1992
LA: English
AB: We examined ecophysiological responses of Sanderlings (Calidris alba) to their nonbreeding environments in New Jersey(USA), Texas (USA), Punta Chame (Panama), and Puerto Viejo (Peru). Daily energy expenditure (DEE; measured using doubly labeled water) was strongly influenced by the thermal environment, being higher at colder locations, and equivalent to 4.2 times the basal metabolic rate in New Jersey, 2.8 in Texas,2.1 in Panama, and 2.7 in Peru (200, 135, 100, and 129 kJ/d; n =10, 5, 10, and 16, respectively). Time budgets varied among locations, but in all cases feeding and roosting acounted for apprxeq 90% of daylight hours. Feeding times were 55% in New Jersey, 90% in Texas, 40% in Panama, and 45% in Peru, suggesting that Sanderlings required more time to satisfy their food requirements in Texas than in the other locations. Total body mass and body fat increased linearly with decreasing long-term mean January air temperature but, because of the synchronous increase in energy expenditure, predicted survival times during food deprivation increased only slightly. Individual Sanderlings experience living conditions throughout their non-breeding distribution, with DEE and nutritional reserves being determined primarily by temperature. Time budgets vary accordingly to accommodate these demands.

Enregistrement 175 de 695 - BA on CD July - December 1992
TI: Reproductive energetics and prey harvest of Leach's storm-petrels in the northwest Atlantic.
AU: MONTEVECCHI-W-A; BIRT-FRIESEN-V-L; CAIRNS-D-K
SO: ECOLOGY 73(3): 823-832
PY: 1992
LA: English
AB: Leach's Storm-Petrels (Oceanodroma leucorhoa), the smallest and most abundant seabirds that breed in the northwest Atlantic,are not usually included in avian energetics models. To round out an energy analysis of seabirds spanning the full range of body sizes in the northwest Atlantic, the field metabolic rates (FMRs) of breeding Leach's Storm-Petrels were measured using doubly labeled water techniques (DLW). Metabolic, dietary and,demographic data were used as inputs in a populations energetics model to estimate the energy requirements and prey harvests of the Leach's Storm-Petrel population of eastern North America.FMRs of storm-petrels that remained in burrows averaged 83.3 +-19.4 kJ/d. FMRs increased significantly with time (i.e., x in hours per day) at sea (y = (85.8 +- 6.5) + (3.13 +- 0.48)x), and metabolism at sea was estimated to be 161 +- 18 kJ/d. FMRs integrated over activity on land and activity at sea averaged 124 kJ/d during incubation and 142 kJ/d during chick rearing.Incubating adults weighed significantly more than adults rearing chicks, although adult mass did not vary with age of chick. Basal metabolic rate (BMR, measured as O-2 flux) averaged 2.02 +- 1.01 cm-3 cntdot g-1 cntdot h-1, equivalent to 45.4 +- 30.4 kJ/d, very similar to values obtained for breeding conspecifics in the Bay of Fundy and in the Bering Sea. Thermal conductance averaged 0.124 +- 0.065 cm-3 cntdot g-1 cntdot h-1 cntdot degree C-1.FMR/BMR ratios averaged 2.73 for incubating birds and 3.13 for birds rearing young. Population energetics modelling indicated that during a 7-mo breeding period Leach's Storm-Petrels at colonies in the northwest Atlantic Ocean consume gt 74 000 Mg of prey, mostly myctophids and amphipods (mostly Hyperia galba), as well as euphausiids (mostly Meganyctiphanes norvegica) and other prey (decapods, copepods, isopods). Leach's Storm-Petrels make upapprxeq 80% of the breeding seabird population in eastern Canada,but owing to small body size and metabolic efficiency, they account for comparatively little of the energy that flows through the avian assemblage of the northwesten Atlantic. An intra-specific, inter-colony difference in FMR is suggested: FMRs measured in a Newfoundland colony were significantly higher than those determined with the same DLW procedure in the Bay of Fundy near the southern limit of the species' breeding range in the northwest Atlantic. Differences in ambient temperatures and windspeed associated with different oceanographic regimes may generate energetic differences. Like inter-colony differences in feeding ecology, inter-colony differences in FMR need to be considered in population and community energetics models and in meso- and mega-scale extrapolations.

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Enregistrement 176 de 695 - BA on CD July - December 1992
TI: The consequence of a drop in temperature on clutches of the swift Apus apus.
AU: GORY-G
SO: ALAUDA 60(1): 41-47
PY: 1992
LA: French
AB: After having studied the effects of wind on the breeding of the Swift Apus apus in the Mediterannean area (Gory 1987), we now show that a drop in temperature at the time of laying provokes a halt in laying identical to that seen in the presence of winds from the N-NW quarter. Nonetheless, analysis of reproductive success shows that a sharp drop in temperature has less of an impact than a violent wind.

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Enregistrement 177 de 695 - BA on CD July - December 1992
TI: Effects of variable humidity on embryonic development and hatching success of mourning doves.
AU: WALSBERG-G-E; SCHMIDT-C-A
SO: AUK 109(2): 309-314
PY: 1992
LA: English
AB: Newly laid Mourning Dove (Zenaida macroura) eggs were held at a constant temperature of 37.5 degree C at one of three relative humidities: 0-5% ("arid"); 35-45% ("intermediate"); and 95-100% ("humid"). Samples in the humid treatment lost significantly less water than those in intermediate or arid treatments. There was significantly more water in embryos of the humid treatment than in the intermediate or arid treatments.Protein and carbohydrate content of samples in the humid treatment was significantly smaller than those in intermediate or arid treatments, whereas lipid and ash contents did not differ among the three treatments. Even in the worst case of constant exposure to near-saturation humidities, 50% of embryos succeeded to hatching. This is, however, significantly below the 85% or 90%hatching success characteristic of the arid or intermediate humidities, respectively. Of the doves that failed to hatch in the humid condition, 90% developed to pipping and initiated aerial respiration. Contrary to previous analyses that suggested that hatching failure is likely due to the embryo's failure to initiate pulmonary respiration or to maintain constant hydration,the failure of Mourning Dove embryos to hatch apparently was due to severe mechanical restriction

upon movement within the rigid shell. This was produced by the lack of adequate internal space produced by evaporative water loss.

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Enregistrement 185 de 695 - BA on CD July - December 1992
TI: Winter energy requirements of blue grouse.
AU: PEKINS-P-J; GESSAMAN-J-A; LINDZEY-F-G
SO: CANADIAN JOURNAL OF ZOOLOGY 70(1): 22-24
PY: 1992
LA: English
AB: We measured the effects of temperature (T-a) on the metabolic rate of 6 blue grouse (Dendragapus obscurus) during winter with indirect respiration calorimetry. The standard metabolic rate was 0.812 L O-2 cntdot (Kg-0.734)-1 cntdot h-1 and was 24% higher than that predicted allometrically. The lower critical temperature (T-lc) of fasted grouse was -5 degree C;metabolism increased linearly below -5 degree C. The heat increment associated with a Douglas-fir (Pseudotsuga menziesii) diet lowered the T-lc by 5 degree C. From -5 to -20 degree C, the metabolism of fasted and fed grouse increased by 30 and 12%,respectively. A positive winter energy balance was predicted for blue grouse from estimates of the field metabolic rate and the consumption and assimilation rates of a Douglas-fir diet.

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Enregistrement 187 de 695 - BA on CD July - December 1992
TI: Effects of wind and illumination on behavior and metabolic rate of American goldfinches (Carduelis tristis).
AU: BAKKEN-G-S; LEE-K-E
SO: AUK 109(1): 119-125
PY: 1992
LA: English
AB: We measured the metbolic rate of active-phase American Goldfinches (Carduelis tristis) with and without illumination at 10 degree C and four wind speeds. We observed the birds via closed-circuit television. Illumination alone increased metabolism 37%. Metabolic rate increased linearly with activity and wind speed. A decrease in activity as wind speed increased tended to counteract the increase in thermoregulatory metabolism caused by convection, and reduced the slope of metabolism-vs.-wind-speed plots. The increase of metabolism with activity was reduced by the presence of illumination, which suggests relatively more compensation for thermoregulatory metabolism by activity metabolism when illumination is present.Stepwise linear regression was used to correct for nonthermal effects of illumination and wind to improve estimates of their purely thermal effects.

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Enregistrement 188 de 695 - BA on CD July - December 1992
TI: Brood size and thermal environment influence field metabolism of nestling yellow-eyed juncos.
AU: SULLIVAN-K-A; WEATHERS-W-W
SO: AUK 109(1): 112-118
PY: 1992
LA: English
AB: We used the doubly-labeled-water method to examine the effect of thermal environment (mean shade air temperature) and brood size (two to six young) on field metabolic rate of nestling Yellow-eyed Juncos (Junco phaeonotus). The relationship between brood size and nestling field metabolic rate was curvilinear,such that nestling energy expenditure was lowest in broods of four (the most common clutch size) and highest in broods of two(the smallest brood size). Mean air temperature accounted for 21.0% of the variation in nestling field metabolic rate, whereas brood size accounted for 17.5% of the variation. Although brood reduction would decrease the brood's field metabolic rate, the reduction is not proportional to decrease in brood size.

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Enregistrement 189 de 695 - BA on CD July - December 1992
TI: Seasonal changes in egg-mass within and among clutches of birds: General explanations and a field study of the blackbird Turdus merula.
AU: MAGRATH-R-D
SO: IBIS 134(2): 171-179
PY: 1992
LA: English
AB: In many populations of birds there is a seasonal change in the mean mass of eggs in the clutch. This might be caused by seasonal changes in the costs of egg-production, or changes in the benefits of laying eggs of different size. In the Blackbird Turdus merula the mean mass of an egg correlated specifically with the air temperature during the period when it was predicted to be undergoing rapid follicular growth. There was no residual effect of date or day-length on egg-mass when statistically controlling for temperature during the period of rapid yolk synthesis, yet temperature still had a significant effect when controlling for date or day-length. Thus the seasonal increase in egg-mass appears

to be due to changes in the cost of egg-production, not changes in the benefits of laying larger eggs. However, I could find no effect of food supply during laying on the mean mass of eggs in the clutch, either using an indirect measure of food availability, rainfall, or in a food-supplementation experiment. This could be because females responded to extra food by laying earlier, and probably larger,clutches, rather than by increasing egg-mass. The effect of temperature on egg-mass increased through the laying sequence and there was a small seasonal increase in the mass of the last-laid egg compared with the mean of the other eggs in the clutch. I propose that the mean mass of the last-laid egg relative to the clutch mean, which can characterize a species or population,could evolve in response to the environmentally-caused variancei n the mass of the last-laid egg: when the variance is high, the mean may have to be high to avoid producing unviable eggs.

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Enregistrement 212 de 695 - BA on CD January - June 1993
TI: Energy turnover and body temperature in the painted quail coturnix chinensis (Galliformes/Phasianidae) and the barred button-quail Turnix suscitator (Gruiformes/Turnicidae).
AU: PRINZINGER-R; MISOVIC-A; SCHLEUCHER-E
SO: JOURNAL FUER ORNITHOLOGIE 134(1): 78-84
PY: 1993
LA: German
AB: Both species show similar body masses and a lot of other morphological convergences. Additionally they represent the smallest members of their orders. Therefore it was of interest to test the allometric and taxonomic relations of different physiological parameters in these birds. No significant differences were found between males and females in both species.Turnix shows a metabolic rate clearly below the predicted range.The metabolic turnover of Coturnix is within the expected values.The results show a clear difference between the two orders. This indicates that there is no well justified reason for the common practice of separating the passerines from the "nonpasserines" on the level of metabolism. Both species exhibit a high thermal conductance and low body temperatures. The combination of these characteristics is a good physiological adaptation to live in warm and dry environments as found in other small birds of the same habitat.

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Enregistrement 225 de 695 - BA on CD January - June 1993
TI: Breeding ecology of the red-backed shrike Lanius collurio in the Wielkopolska region (western Poland).
AU: KUZNIAK-S
SO: ACTA ORNITHOLOGICA (WARSAW) 26(2): 67-83
PY: 1991
LA: English
AB: The breeding ecology of the Red-blacked Shrike was studied in various habitat types of the Leszno region in 1971-1979. The density of the breeding population was 0.8-6.2 pairs per 10 ha.Of the total number of the nest (n = 168), 40% were placed in shrubs with thorn and spines, and 24% in coniferous trees and shrubs. Most nests were built at a high 0.7-1.8 m, with mean of 1.4 m. The dates of nest initiation were similar in different years thought temperatures showed large year-to-year variation.Two period of eggs laying were distinguished: basic and supplementary. In the basic period 80% of the nests were initiated. Complete clutches consisted of 2 to 7 eggs, with mean 4.97 eggs. The total losses of eggs and nestlings accounted for 40%. Most losses occurred during laying and incubation, an they were mainly due to predators and adverse weather. The mean number of nestlings per nest in which at least one nestling hatched was 4.21. The production of younger per successful nest, survived by age 8-10 days, was 4.15. The mean number of young per nest declined with the breeding season.

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Enregistrement 243 de 695 - BA on CD January - June 1993
TI: The thermal and energetic significance of clustering in the speckled mousebird, Colius striatus.
AU: BROWN-C-R; FOSTER-G-G
SO: JOURNAL OF COMPARATIVE PHYSIOLOGY B BIOCHEMICAL SYSTEMIC AND ENVIRONMENTAL PHYSIOLOGY 162(7): 658-664
PY: 1992
LA: English
AB: The effect of clustering behavior on metabolism, body temperature, thermal conductance and evaporative water loss was investigated in speckled mousebirds at temperatures between 5 and 36 degree C. Within the thermal neutral zone (approximately 30-35 degree C) basal metabolic rate of clusters of two birds (32.5 J cntdot g-1 cntdot h-1) and four birds (28.5 J cntdot g-1 cntdot h-1) was significantly lower by about 11% and 22%, respectively,than that of individuals (36.4 J cntdot g-1 cntdot h-1).Similarly, below the lower critical temperature, the metabolism of clusters of two and four birds was about 14% and 31% lower,respectively, than for individual birds as a result of significantly lower total thermal conductance in clustered birds.Body temperature ranged from about 36 to 41 degree C and was positively correlated with ambient temperature in both individuals and cluster, but was less variable in clusters. Total evaporative

water loss was similar in individuals an clusters and averaged 5-6% of body weight per day below 30 degree C in individuals and below 25 degree C in clusters. Above these temperatures total evaporative water loss increased and mousebirds could dissipate between 80 and 90% of their metabolic heat production at ambient temperatures between 36 and 39 degree C. Mouse binds not only clustered to sleep between sunset and sunrise but were also observed to cluster during the day, even at high ambient temperature. Whereas clustering at night and during cold, wet weather serves a thermoregulatory function, in that it allow the birds to maintain body temperature at a reduced metabolic cost, clustering during the day is probably related to maintenance of social bonds within the flock.

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Enregistrement 245 de 695 - BA on CD January - June 1993
TI: Seasonal changes of the adrenocortical response to stress in birds of the Sonoran Desert.
AU: WINGFIELD-J-C; VLECK-C-M; MOORE-M-C
SO: JOURNAL OF EXPERIMENTAL ZOOLOGY 264(4): 419-428
PY: 1992
LA: English
AB: Many avian species of the North American Sonoran desert,e.g., the black-throated sparrow, Amphispiza bilineata, cactus wren, Campylorhynchus brunneicapillus, and curve-billed thrasher,Toxostoma curvirostre, can potentially breed from March/April to August. It is possible that, at least in summer, intense heat and aridity may have inhibitory effects on breeding by precipitating a stress response. Stress typically results in a rise in secretion of adrenocorticosteroid hormones that then inhibit reproduction by suppressing release of gonadal hormones. However,we found that plasma levels of corticosterone were not higher during summer, compared with winter, even in 1989 when summer temperatures were higher than normal. In June 1990, temperatures were also above normal and soared to the highest level recorded in Arizona (50 degree C). Plasma levels of corticosterone during June were high in black-throated sparrows, but less so in two other species (Abert's towhee, Pipilo aberti, and Inca dove, Scardafella inca) found in more shady riparian and suburban habitat with constant access to water. The adrenocortical response to stress (as measured by the rate of corticosterone increase following capture) was reduced in the hottest summer months in black-throated sparrows, cactus wrens, and curve-billed thrashers, but less so in Abert's towhee an Inca dove. These data suggest that at least some birds breeding in the open desert with restricted access to water are able to suppress the classical adrenocortical response to stress. The response is then reactivated in winter after breeding has ceased. It is possible that this stress modulation may allow breeding to continue despite severe heat. Analysis of plasma from these species indicated that the apparent modulation of the adrenocortical response to stress was not an artifact of reduced affinity or capacity of corticosterone binding proteins.

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Enregistrement 246 de 695 - BA on CD January - June 1993
TI: Winter fattening in gray jays; Seasonal, diurnal and climatic correlates.
AU: WAITE-T-A
SO: ORNIS SCANDINAVICA 23(4): 499-503
PY: 1992
LA: English
AB: Recent models of body mass regulation predict that small birds wintering under thermally stressful conditions should show increases in the dawn minima of their body mass and fat reserves with the approach of midwinter. This seasonal increase in energy reserves is hypothesized to function as insurance against the increased thermal energy reserves is hypothesized to function as insurance against the increased thermal demands during the short cold days of midwinter, when snowstorms can further reduce the already-deteriorating food supply. Superimposed on this winter fattening strategy, there should be a daily increase in the amount of fat stored for the coming night of fasting. To investigate patterns of variation in their body mass and fat reserves, Gray Jays Perisoreus canadensis were captured repeatedly near the northern limit of their range in Alaska (USA)between 7 September and 16 December 1987. As predicted, the dawn minima of body mass and fat stores tended to increase with the approach of midwinter. In addition, the results suggest that the jays increased their energy reserves latter in the day, and that they facultatively increased their reserves in response to lower temperatures, heavier snowfall, and windier conditions. These results indicate that there was a seasonal increase in energy reserves associated with decreasing photoperiod, and that superimposed on this pattern was a daily cycle sensitive to contemporaneous climatic conditions. Thus, the jays appeared to have increased fasting capacity during those times when the risk of energetic shortfall was heightened.

Enregistrement 247 de 695 - BA on CD January - June 1993
TI: The diurnal body weight cycle in tit mice Parus spp.
AU: HAFTORN-S
SO: ORNIS SCANDINAVICA 23(4): 435-443
PY: 1992
LA: English
AB: The diurnal weight cycle of five species of tits (Parus montanus, P. palustris, P. major, P. caeruleus and P. ater) was studied in Norway. The daily weight increase (DWI) tended to rise to a maximum in mid-winter and thereafter decline. The hourly weight increase (HWI) showed a marked seasonal fluctuation and was about twice as high in mid-winter as in autumn and spring.Generally HWI was highest in the morning, but tended to vary with rank order during mid-winter, i.e. being highest in the dominants. A relatively high evening weight was followed by a large nightly weight decrease, and vice versa. Thus the nightly metabolism seems to be adjusted according to the evening weight,as previously shown in captive Willow Tits. It is suggested that hypothermia during sleep is a trade-off between energy reserves and pedation risk. The air temperature apparently had only a negligible effect on the weight fluctuations, perhaps because of the relatively mild winters during the study period.

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Enregistrement 248 de 695 - BA on CD January - June 1993
TI: The effect of environmental factors on survival of grey partridge (Perdix perdix) chicks in Poland during 1987-1989.
AU: PANEK-M
SO: JOURNAL OF APPLIED ECOLOGY 29(3): 745-750
PY: 1992
LA: English
AB: The survival of grey partridges chicks was estimated from the brood sizes in several areas of Poland, and related to weather conditions, abundance of insect food, occurrence of weeds, and the use of herbicides. Geometric mean brood size in different areas and years ranged from 7.5 to 11.2, with a mean of 9.3, and the estimated chick survival rate ranged from 42 to 71%, with a mean of 56%. Chick survival rates increased with mean temperatures and decreased with increasing numbers of rainy days in June. Chick survival rates increased with numbers of plant bugs, but they had no significant effect after removal of the effect of weather. Numbers of plant bugs increased with temperature. Density and species diversity of dicotyledonous weeds in cereals were relatively high, and differences in weeds between areas were not in accordance with differences in the abundance of insects selected by partridges. The application of herbicides in Poland so far has not had a marked indirect negative effect on the survival of partridge chicks. Presumably the occurrence of permanent cover in crop fields has a positive effect on chick survival.

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Enregistrement 249 de 695 - BA on CD January - June 1993
TI: Distributional patterns and seasonal movements of Procellariiformes in the North Pacific.
AU: KURODA-N
SO: JOURNAL OF THE YAMASHINA INSTITUTE FOR ORNITHOLOGY 23(2):23-84
PY: 1991
LA: English
AB: Pelagic seabird surveys were made during 11 trans-pacific round navigations of car-transport ships between Japan and U.S.A., March 1983-February 1985. In a total of 124 recorded seabird species (5 Orders, 14 Families), the Procellariiformes included: Diomedeidae 2, Procellariidae 29 and Hydrobatidae 10 species. Their distribution showed the following patterns: 1.Boreal to temperate dispersal pattern 2. Temperate to subtropical dispersal pattern 3. Coastal patterns (Japanese and U.S. westcoasts) 4. Subtropical endemic pattern 5. Subtropical to northward dispersal pattern. These distributional patterns reflected the specific adaptive levels of water temperature. The seasonal advance and retreat of migratory front could be traced in some trans-equatorial southern hemisphere species, and the main migratory lane was suggested in the Hawaiian (USA) leeward waters. In a few related species pairs, mutual shifts of main distributional sea areas were noticed.

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Enregistrement 252 de 695 - BA on CD January - June 1993
TI: Ventilatory and metabolic dynamics during entry into and arousal from torpor in Selasphorus hummingbirds.
AU: BUCHER-T-L; CHAPPELL-M-A
SO: PHYSIOLOGICAL ZOOLOGY 65(5): 978-993
PY: 1992
LA: English
AB: Both ventilation frequency (f) and the rate of oxygen consumption ( ovrhdot V-O-2) change dramatically as Selasphorus hummingbirds enter and arouse from torpor. Changes in f and ovrhdot V-O-2 are generally coincident, but the proportional changes in the two parameters are not identical, and their relationship varies at different ambient temperatures (T-a) and between entry and arousal. Ventilation frequency and ovrhdot V-O-2 may be substantially

decoupled, particularly during the latter stages of entry into torpor and also during arousals of birds with steady-state torpor body temperatures (T-b) gt 20 degree C. Contrary to what generally has been reported in birds,the time of active inspiration (T-INV) in hummingbirds usually exceeds the time of expiration (T-EX). The large decrease in f that occurs as hummingbirds go torpid is accomplished by lengthening T-INV, by slightly increasing T-EX, and by inserting a nonventilatory pause (NVP) into the inspiratory portion of the ventilation cycle. The NVP occurs in the middle of inspiration such that inspiratory air flow occurs in two separate stages. At the lowest f's seen in torpor (1-2 breaths/min), ventilation occurs in bursts of breaths separated by NVPs that lengthen into apneas lasting up to 5 min.

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Enregistrement 253 de 695 - BA on CD January - June 1993
TI: Exercise-generated heat contributes to thermoregulation by Gambel's quail in the cold.
AU: ZERBA-E; WALSBERG-G-E
SO: JOURNAL OF EXPERIMENTAL BIOLOGY 171(0): 409-422
PY: 1992
LA: English
AB: The purpose of this study was to investigate the relationship between the allocation of exercise-generated heat and resting metabolic heat production during cold exposure. We tested the hypothesis that, during cold exposure,exercise-generated heat contributes to the fulfillment of the thermostatic requirement. Our assumption was that the thermostatic requirement is higher for exercising than forresting birds in still air because of the disruption of boundary and plumage insulation layers. We predicted that, during moderate exercise, the metabolic heat production of exercising birds would be higher than that for resting birds in still air but would not differ significantly from the metabolic heat generated by resting birds exposed to similar convective conditions. To test our hypothesis we measured whole-animal oxygen consumption of Gambel's quail (Callipepla gambelli Gambel) running in a circular metabolic chamber and at rest in still air at ambient temperatures below the animal's lower critical temperature. We compared these data to previous data for Gambel's quail at rest exposed to wind at a speed equal to the running speed used in our experiments. In addition to oxygen consumption measurements, we measured body temperatures of exercising and resting birds. The data supported our assumption and predictions. (1) Whole-body thermal resistance for exercising birds was lower than that forresting birds in still air, indicating that the thermostatic requirement was higher for exercising birds because of the disruption of boundary and plumage insulation layers. (2) Heat productions of exercising birds were significantly higher than those of resting birds in still air but were not significantly different from the heat productions of resting birds exposed to similar convective conditions. (3) Body temperatures were not significantly different between resting birds in still air and exercising birds. The mean body temperature of exercising birds,however, was 2 degree C higher than that of resting birds exposed to wind. We concluded that an exercising animal probably does not incur an energetic cost associated with locomotor activity at low ambient temperatures in comparison to an inactive animal exposed to a similar convective regime.

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Enregistrement 266 de 695 - BA on CD January - June 1993
TI: Sea temperature in Bass Strait and breeding success of the Little Penguin Eudyptula minor at Phillip Island, south-eastern Australia.
AU: MICKELSON-M-J; DANN-P; CULLEN-J-M
SO: EMU 91(5): 355-368
PY: 1992
LA: English
AB: Between 29 and 47% of the interannual variability in the weight and breeding success of the Little Penguin Eudyptula minor on Phillip Island, south-eastern Australia, was attributed, by correlation analysis, to monthly and inter-annual decreases in the east-west sea temperature gradient across Bass Strait. A station to the east, influenced by the East Australian Current,was generally about 2 degree C warmer than a station near the colony but these temperatures decreased, especially to the east,with the arrival of west winds. The correlations between physical and biological variables were consistent with the hypothesis that winds from the west bring cooler waters into and across Bass Strait, and that those cooler waters have slightly higher concentrations of nutrients or chlorophyll or more of the fish on which Little Penguins feed. The birds' biological response was measurable on a time scale of months; a decreased sea temperature gradient was associated with increased weights of adults four months later and a July-August decrease in sea temperature gradient was associated with an early start to egg laying in September-October.

Enregistrement 269 de 695 - BA on CD January - June 1993
TI: Little penguins Eudyptula minor in Victoria: Past, present and future.
AU: NORMAN-F-I; CULLEN-J-M; DANN-P
SO: EMU 91(5): 402-408
PY: 1992
LA: English
AB: Colonies of Little Penguins Eudyptula minor on Phillip Island, Victoria, (Australia) have declined in both breeding areas and numbers. This decrease, and recent mortalities,stimulated research to support a 'Penguin Protection Plan' that started in 1985. Aspects of this research and its management implications are reviewed. Historically, land alienation and subdivision reduced colony distribution. Mortalitites at sea have been obvious for some time: those of adults usually involved few birds in Port Phillip Bay. Immature birds die off western Victoria (probably regularly, and occasionally in large numbers):these mortalities may be associated with starvation and endoparasites. Breeding periods have shortened in the past 20 years, and hance reduced potential recruitment, and there are increased losses in the pre-breeding age group. Some losses are due to continuing predator activities (mainly fox) but studies suggest that climate changes, reflected in sea temperature, may play a role in population regulation presumably through food availability. Off Phillip Island, Little Penguins take a range of prey, principally small schooling clupeoids, and breeding can be delayed if these are unavailable. Fish sampling showed the changing abundance and patchy distribution of food and the birds' distribution sometimes related to that of prey. Adults use Port Phillip Bay in non-breeding periods and overfishing of main prey species could affect Little Penguins: commercial catches of Pilchards have increased substantially, but they involve larger fish. There is no commercial Pilchard fishery off the Phillip Island colonies. Present land-management practices favour the Little Penguin on Phillip Island but prospects of moderating at-sea factors are small. A better understanding of the Little Penguins' marine ecosystem is required.

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Enregistrement 278 de 695 - BA on CD January - June 1993
TI: Energetic limitation in the egg-laying period of great tits.
AU: NAGER-R-G; VAN-NOORDWIJK-A-J
SO: PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON SERIES B BIOLOGICAL SCIENCES 249(1326): 259-263
PY: 1992
LA: English
AB: Individual birds of many species laying earlier than the population average produce more offspring which survive to enter the subsequent breeding population. A shortage of resources early in the season is commonly supposed to force some females to delay their egg production beyond the time which would be best for offspring production. We sought to test this hypothesis by experimentally manipulating the energy expenses of female great tits, Parus major, during the pre-laying and egg-laying period.By heating and cooling their roosting cavities (nestboxes) we decreased and increased, respectively, their energetic requirements for maintenance. The 'energy limitation hypothesis' predicts that our temperature manipulation would result in an earlier start of egg laying in heated boxes and a delay in cooled boxes. The temperature reduction in cooled nestboxes compared with heated nestboxes of about 1.5 degree C throughout the day seemed to affect the birds as they changed their nestbuilding behavior and invested less in egg production (reflected in a reduction of egg volume of about 14%). However, we could find no evidence for a later laying date of females breeding in cooled nestboxes as compared with females in heated nestboxes.

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Enregistrement 291 de 695 - BA on CD July-December 1993
TI: Cold tolerance and thermogenic capacity in dark-eyed juncos in winter: Geographic variation and comparison with American tree sparrows.
AU: SWANSON-D-L
SO: JOURNAL OF THERMAL BIOLOGY 18(4): 275-281
PY: 1993
LA: English
AB: 1. Cold tolerance and maximal thermogenic capacity ( ovrhdot V-O2 max) under cold stress in helox gas mixtures (approx. 79% He,21% O-2) were determined for dark-eyed Juncos (Junco hyemalis) and American Tree Sparrows (Spizella arborea) wintering in SE South Dakota. Junco data were compared to previous data on juncos wintering in the milder climate of western Oregon. 2. Dark-eyed Juncos from South Dakota (SDJU) tolerated colder helox temperatures than Oregon birds (ORJU). This improved cold resistance was not associated with increase thermogenic capacity or SMR in SDJU, as SMR and total ovrhdot V-O2 max did not differ significantly and mass-specific ovrhdot V-O2 max was greater in ORJU. 3. SDJU were significantly larger and had significantly lower thermal conductance than ORJU and these may be important to improved cold tolerance capabilities in the former. 4. SDJU showed significantly higher total ovrhdot V-O2 max than sympatric American Tree Sparrows (ATSP), but mass-specific ovrhdot V-O2 max did not vary as juncos were significantly heavier than sparrows.5. SDJU tolerated slightly colder temperatures than did

ATSP.Thermal conductance and SMR did not differ between the two species. Sympatric wintering Dark-dyed Juncos and American Tree Sparrows, which show similar ranges and habits, also demonstrate similar metabolic performance in the cold.

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Enregistrement 299 de 695 - BA on CD July-December 1993
TI: Seasonal patterns of time and energy allocation by birds.
AU: WEATHERS-W-W; SULLIVAN-K-A
SO: PHYSIOLOGICAL ZOOLOGY 66(4): 511-536
PY: 1993
LA: English
AB: We evaluated two competing hypotheses concerning how field metabolic rate (FMR) of birds should vary seasonally. There allocation hypothesis predicts little seasonal variation in FMR, whereas the increased demand hypothesis predicts that FMR should reach an annual maximum during the breeding season. In both yellow-eyed juncos (Junco phaeonotus) and dark-eyed juncos (Junco hyemalis), winter FMR averaged 70.5 kJ/d, which is not significantly different from each species' average breeding season value and thus confirms the reallocation hypothesis for these species. The avian literature suggests that diet determines which of the two hypotheses applies to species that breed in seasonal environments. Birds that forage on prey that are difficult to capture follow the increased demand hypothesis,whereas other species exhibit reallocation. To maintain energy balance, yellow-eyed juncos had to forage longer during the winter than during the breeding season (6.0 vs. 4.5 h/d) because their rate of metabolizable energy gain was 22% lower when foraging on seeds in winter than when foraging on insects during the breeding season (11.8 vs. 15.1 kJ per hour spent foraging,respectively). We used behavioral, meteorological, and laboratory metabolism data to calculate the energy devoted to thermoregulation under field conditions during the winter. Our analysis revealed that all of the heat produced as a by-product of physical activity contributed to thermoregulation. Basal metabolism and thermoregulatory costs combined constituted the juncos' entire winter FMR, with thermoregulatory costs averaging 57% of FMR in yellow-eyed juncos and 49% in dark-eyed juncos.Thus, behavior has no net energy cost at low temperatures in juncos. Our data also suggest that winter is a period of greater energy stringency for juncos than is the breeding season.

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Enregistrement 304 de 695 - BA on CD July-December 1993
TI: Thermal consequences of diurnal microhabitat selection in a small bird.
AU: WALSBERG-G-E
SO: ORNIS SCANDINAVICA 24(3): 174-182
PY: 1993
LA: English
AB: Thermal consequences of microhabitat selection during daily activity were quantified for male Phainopeplas Phainopepla nitens breeding during (1) spring in the Sonoran Desert, (2) summer in semiarid woodlands with mild. ocean-moderated climates, and (3)summer in semiarid woodlands isolated from ocean moderation. The interior woodland was markedly hotter during the Phainopepla's breeding season than were the other two habitats; for example,maximum air temperature averaged 39.7 degree C in the interior woodland and 28-29 degree C in the other two areas. Microhabitat selection was similar in the Sonoran Desert and the coastal woodland, but differed substantially between these locations and the interior woodland. Use of sites exposed to direct sunlight was reduced 56% in the interior woodland compared to the coastal location. This reflects reduced use of exposed perches with a resultant increase in use of shaded sites within vegetation which significantly lowers operative environmental temperatures experienced by birds in the interior woodland. Thus, site selection reduces by two-thirds the amount of time the animal experiences environmental temperatures above its upper critical temperature of 43 degree C. Avoidance of exposed sites by birds breeding in the interior woodland may interfere with vital activities such as foraging and territorial advertisement.

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Enregistrement 308 de 695 - BA on CD July-December 1993
TI: Changing nest placement of Hawaiian common amakihi during the breeding cycle.
AU: VAN-RIPER-C-III; KERN-M-D; SOGGE-M-K
SO: WILSON BULLETIN 105(3): 436-447
PY: 1993
LA: English
AB: We studied the nesting behavior of the Common Amakihi (Hemignathus virens) from 1970-1981 on the island of Hawaii to determine if the species alters nest placement over a protracted 9-month breeding season. Birds preferentially chose the southwest quadrant of trees in which to build nests during all phases of the breeding season. It appeared that ambient temperature (Ta)was a contributing factor to differential nest placement between early and late phases of the annual breeding cycle. When Ta is low during the early (December-March) breeding period, Common Amakihi

selected exposed nesting locations that benefitted them with maximum solar insolation. However, in the later phase of the breeding period (April-July) when Ta was much higher, renesting birds selected nest sites deeper in the canopy in significantly taller trees. This is one of the few documented examples in which a species changes location of nest during a breeding season, thus allowing exploitation of temporally differing microclimatic conditions.

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Enregistrement 309 de 695 - BA on CD July-December 1993
TI: A theoretical investigation of the fat reserves and mortality levels of small birds in winter.
AU: HOUSTON-A-I; MCNAMARA-J-M
SO: ORNIS SCANDINAVICA 24(3): 205-219
PY: 1993
LA: English
AB: We assume that the fat levels of a small bird in winter reflect a tradeoff between starvation and predation. This tradeoff is formalized by finding the level of fat that minimizes total mortality (starvation plus predation) in a given environment. A bird is characterised in terms of its level of energy reserves. The bird starves if these reserves fall to zero.In general, the probability that the bird is killed by a predator increases with increasing reserves. We consider two models. In both at each time unit during a day a bird can choose, as a function of its reserves, to forage or to rest. In the forage vs rest model there is only one foraging option. In the foraging intensity model the bird can choose from a range of options,where options with a high energetic gain also incur a high predation risk. We find the optimal level of reserves for various environments, together with the resulting levels of starvation and predation. Unless food availability is very high, an improvement in overall availability results in a decrease in the mean reserves at dusk (MRD); in the foraging intensity model there is also a trend towards choosing safer foraging options with lower mean gains. An increase in variability, either as a result of a decreased probability of finding food or an increase in interruptions of foraging, increases MRD. The increase in reserves is not sufficient to prevent an increase in starvation.As a result, reserves and starvation can be positively correlated across environmental conditions. The level of starvation tends to be lower than the level of predation, but the ratio of starvation to predation tends to increase as conditions become worse. In the middle of winter, the days are short and the nights are long and cold. The optimal response to a decrease in daylength involves an increase in both dawn and dusk levels of reserves. This pattern is also found when overnight expenditure increases but daylength is constant. In this context we show that when temperatures are very low, a small saving in energy can result in a substantial increase in survival probability. The relevance of this result for evaluating the importance of hypothermia is discussed.

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Enregistrement 318 de 695 - BA on CD July-December 1993
TI: Responses of marsh fishes and breeding wading birds to low temperatures: A possible behavioral link between predator and prey.
AU: FREDERICK-P-C; LOFTUS-W-F
SO: ESTUARIES 16(2): 216-222
PY: 1993
LA: English
AB: In the Everglades of southern Florida, several species of spring- and winter-nesting wading birds (Ciconiiformes) often abandon their nests in response to periods of cold or wet and windy weather. Using stepwise logistic regression of a variety of hydrologic and meteorologic variables on the probability of great egret nest failure, we found that cold temperatures and high windspeeds were most closely associated with nest failure in the Everglades. Water level fluctuation was not a significant correlate of failure. Quantitative visual surveys in the field showed that even moderate cooling events (15 degree C minimum daily temperature) dramatically altered the observed densities of marsh fishes. In controlled conditions in the laboratory, we observed centrarchid, poeciliid, and cyprinodontid fishes during normal high (19-23 degree C) and simulated cold snap (8-11 degree C) temperatures. At low temperatures, the fishes exhibited reduced activity, sought refuge by hiding in vegetation and/or substrate, and fled our approach to the tank at much greater distances. Threshold temperatures for these behaviors varied considerably between the laboratory (9-11 degree C) and field(15-11 degree C) and field (15-20 degree C), and may be explained by differences in the previous thermal experience of the two groups of fishes. We hypothesize that the temperature-induced scarcity of fishes during spring cold snaps is an important cause of disruption of nesting for several species of wading birds in the Everglades.

Enregistrement 323 de 695 - BA on CD July-December 1993
TI: Potential effects of climate change on a semi-permanent prairie wetland.
AU: POIANI-K-A; JOHNSON-W-C
SO: CLIMATIC CHANGE 24(3): 213-232
PY: 1993
LA: English
AB: We assessed the potential effects of a greenhouse gas-induced global climate change on the hydrology and vegetation of a semi-permanent prairie wetland using a spatially-defined,rule-based simulation model. An 11-yr simulation was run using current versus enhanced greenhouse gas climates. Projections of climatic change were from the Goddard Institute for Space Studies(GISS) general circulation model. Simulations were also run using a range of temperature (+2 and +4 degree C) and precipitation change values (-20, -10.0, +10, +20%) to determine the responsiveness of wetland vegetation and hydrology to a variety of climate scenarios. Maximum water depths were significantly less under the enhanced greenhouse gas scenario than under the current climate. The wetland dried in most years with increased temperature and changes in precipitation. Simulations also revealed a significant change in the vegetation, from a nearly balanced emergent cover to open water ratio to a completely closed basin with no open water areas. Simulations over a range of climate change scenarios showed that precipitation changes(particularly increases) had a greater impact on water levels and cover ratios when the temperature increase was moderate (+2 degree C). These potential changes in wetland hydrology and vegetation could result in a dramatic decline in the quality of habitat for breeding birds, particularly waterfowl. Continued research on climate and wetland modelling is needed.
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Enregistrement 324 de 695 - BA on CD July-December 1993
TI: Nests and nest sites of the San Miguel Island song sparrow.
AU: KERN-M-D; SOGGE-M-K; KERN-R-B; VAN-RIPER-C-III
SO: JOURNAL OF FIELD ORNITHOLOGY 64(3): 367-381
PY: 1993
LA: English
AB: Nests and nest sites of the San Miguel Island (SMI) Song Sparrow (Melospiza melodia micronyx) are described; nests are compared with those of 16 other races of Song Sparrows. Bush lupins (Lupinus albifrons), coyote brush (Baccharis pilularis) and golden bush (Haplopappus venetus) were the shrubs used most commonly as nest sites by Song Sparrows on SMI. As a result of its location, the nest was effectively concealed from gray foxes(Urocyon littoralis), the major predator of this sparrow. Nestand nest site also moderated the combined chilling effects of cool air temperatures and strong northwesterly winds on the eggs and nestlings. Even in the absence of these moderating effects of the nest site, the energetic cost of incubation, estimated at 41-53% of the sparrow's resting metabolic rate, was modest.Twenty-nine percent of the canopy above the nest was open and as much as 73% of the nest cup was in the sun at midday, a time when surface temperatures of foliage, nest and nestlings sometimes exceeded 40 C. Whereas this exposure did not apparently reduce fledging success, it may explain why the incidence of addled eggs was so high in this population of Song Sparrows compared to others. Significant differences existed among races of Song Sparrows in the size, porosity and insulation of the nest. Inmost cases, these differences were not related to the latitude of the races' nesting areas.
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Enregistrement 325 de 695 - BA on CD July-December 1993
TI: Energy savings in waders: Studies on the insulation of knots.
AU: WIERSMA-P; BRUINZEEL-L; PIERSMA-T
SO: LIMOSA 66(2): 41-52
PY: 1993
LA: Netherlandish
AB: The open habitats where many waders winter in the temperate zone are associated with high thermostatic costs for the birds.In this paper we examine physical and behavioural mechanisms allowing waders to save energy. This was studied primarily in the Knot Calidris canutus islandica. Photographs of Knots taken in the laboratory at temperatures ranging from -20 to +30 degree C showed adjustments in posture and feather position (fig. 2). At lower temperatures, feathers were ruffled up, while legs, carpal joints and back were covered by contour feathers of breast and shoulder. Infrared photos showed that the former parts of the body were least insulated under congenial conditions (fig. 3).The legs showed considerable changes in surface temperature,probably as a result of adjustments in blood flow. Thermostatic costs were estimated by measuring the standard operative temperature with heated taxidermic mounts of Knots ("Copper Knots", cf. Bakken et al. 1981, 1983). The standard operative temperature is an integrated measure of air temperature, windspeed and radiation. "Copper Knots" were placed in various habitats in the Wadden Sea wintering area (fig. 6). Open areas(mudflat, salt marsh with sparse vegetation) were the most costly places to be. On a densely vegetated salt marsh, heat loss decreased by 39% (fig. 7). In dense flocks at a nearest neighbour distance of 0.5-1 bird lengths, thermostatic cost decreased by 6-9% as compared to solitary birds (figs. 7, 8). Standing sideways

in the wind increased thermostatic costs by 9% (fig. 7).At lower standard operative temperatures, Knots occurred in denser flocks and more often moved with their heads into the wind(figs. 9, 10). The mean thermostatic cost faced by Knots in the Dutch Wadden Sea ranges from 1.5 W in summer (when few birds are present) to 2.7 W in midwinter (fig. 11). If Knots would not adjust their behaviour to the cold, they would incur a 19% higher energy loss in winter (fig. 11). Given the tight foraging conditions in the Wadden Sea at the time, Knots would not survive even an average winter there without behavioural adjustments to the cold. Using the results of "Copper Knots" measurements, and a model describing the micro-meteorological circumstances for differently-sized birds, we tried to estimate thermostatic costs for two larger estuarine bird species, the Oystercatcher Haematopus ostralegus and the Brent Goose Branta bernicla.Standing on a mudflat in winter, Knot, Oystercatcher and Brent would have thermostatic costs of 3.0, 7.4 and 9.7 W, or 3.2, 2.5 and 2.0 times BMR, respectively (fig. 12). These values are 81,95 and 103% higher than traditional estimates based on air temperature alone.

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Enregistrement 340 de 695 - BA on CD July-December 1993
TI: Development of thermoregulation in the pheasant Phasianus colchicus.
AU: GDOWSKA-E; GORECKI-A; WEINER-J
SO: COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY A COMPARATIVE PHYSIOLOGY 105(2): 231-234
PY: 1993
LA: English
AB: 1. The development of thermoregulatory capability was studied in chicks of the ring-necked pheasant (Phasianus colchicus L.) by means of metabolic rate and body temperature measurements. 2. Measurements were carried out for groups of 1,5, 10, 15, and 30-day-old chicks, at 30, 20, 10, and 0 degree C.3. Pheasant chicks showed metabolic rate increases during lowering of ambient temperature as early as the first day of life, although between the 1st and 10th day of life they were not capable of maintaining stable body temperature. 4.Fifteen-day-old chicks maintained normothermy within the 10-30 degree C range of ambient temperatures while 30-day-old chicks thermoregulated over the entire range of ambient temperatures.

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Enregistrement 341 de 695 - BA on CD July-December 1993
TI: Effect of heating nest boxes on egg laying in the blue tit (Parus caeruleus).
AU: YOM-TOV--Y; WRIGHT-J
SO: AUK 110(1): 95-99
PY: 1993
LA: English
AB: Nest boxes of Blue Tits (Parus caeruleus) were heated from the time that nests were completed and lined (a few days before the first egg appeared) until several days after the completion of the clutch. Night-light candles placed underneath the box increased the temperature of the air in the nest box by an average of 6 degree C. The calculated energy savings for an average Blue Tit roosting one night in a heated nest was 0.768 Kcal, which is estimated to be equivalent to 35% of the cost of producing an egg. The percentage of nests that showed an interruption in the laying sequence was significantly lower in heated nests than in control nests. Minimum ambient temperature four and five days before these interruptions occurred was a significant factor is explaining their frequency, indicating that this is a critical period in egg production. In addition, five of six interruptions in heated nests occurred after a night when the candle was extinguished by wind, suggesting that unpredicted low temperatures on the night before laying also may affect egg laying.

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Enregistrement 347 de 695 - BA on CD July-December 1993
TI: Geographical variation in the density of the white stork Ciconia ciconia in Spain: Influence of habitat structure and climate.
AU: CARRASCAL-L-M; BAUTISTA-L-M; LAZARO-E
SO: BIOLOGICAL CONSERVATION 65(1): 83-87
PY: 1993
LA: English
AB: The spatial variation in the density of white storks Ciconia ciconia in Spain is analysed with respect to landscape and meteorological variables. The density of breeding pairs in 1985 was negatively correlated with surface cover of woodlands and shrublands, and positively correlated with the area of dry or wet grasslands, reflecting food availability and foraging preferences of the storks. Average minimum temperature in April-May (the first few days after hatching) was also negatively correlated with stork density, and the reproductive success in a colony at El Tietar (Avila) was inversely correlated with the number of days with precipitation in May. The negative influence of minimum temperature and precipitation on breeding density appears to be linked with the mortality of recently born nestlings. Practical recommendations are made for the conservation of the Spanish population of white storks through incentive use of

pastures,meadows and 'dehesas' for cattle grazing. Reintroduction efforts must be direct towards zones having large areas of these habitats, and mild weather.

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Enregistrement 349 de 695 - BA on CD July-December 1993
TI: Diving metabolism and thermoregulation in common and thick-billed murres.
AU: CROLL-D-A; MCLAREN-E
SO: JOURNAL OF COMPARATIVE PHYSIOLOGY B BIOCHEMICAL SYSTEMIC AND ENVIRONMENTAL PHYSIOLOGY 163(2): 160-166
PY: 1993
LA: English
AB: The diving and thermoregulatory metabolic rates of two species of diving seabird, common (Uria aalge) and thick-billed murres (U. lomvia), were studied in the laboratory.Post-absorptive resting metabolic rates were similar in both species, averaging 7.8 W cntdot kg-1, and were not different in air or water (15-20 degree C). These values were 1.5-2 times higher than values predicted from published allometric equations.Feeding led to increases of 36 and 49%, diving caused increases of 82 and 140%, and preening led to increases of 107 and 196%above measured resting metabolic rates in common and thick-billed murres, respectively. Metabolic rates of both species increased linearly with decreasing water temperature; lower critical temperature was 15 degree C in common murres and 16 degree C in thick-billed murres. Conductance (assuming a constant body temperature) did not change with decreasing temperature, and was calculated at 3.59 W cntdot m-2 cntdot C-1 and 4.68 W cntdot cm-2 cntdot degree C-1 in common and thick-billed murres,respectively. Murres spend a considerable amount of time in cold water which poses a significant thermal challenge to these relatively small seabirds. If thermal conductance does not change with decreasing water temperature, murres most likely rely upon increasing metabolism to maintain body temperature. The birds probably employ activities such as preening, diving, or food-induced thermogenesis to meet this challenge.

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Enregistrement 350 de 695 - BA on CD July-December 1993
TI: Breeding of the white-backed mousebird Colius colius in relation to rainfall and the phenology of fruiting plants in the southern Karoo, South Africa.
AU: DEAN-W-R-J; WILLIAMS-J-B; MILTON-S-J
SO: JOURNAL OF AFRICAN ZOOLOGY 107(2): 105-111
PY: 1993
LA: English
AB: During a 2.5 year period (1988-1990), White-backed Mousebirds were recorded breeding from August to May in the Prince Albert district in the southern Karoo, South Africa. There was no correlation between the number of breeding records (nests and chicks out of the nest) and flowering, fruiting, new shoots and leaves, temperature or day length. The density of White-backed Mousebirds on our study area was correlated with the availability of fruit. Regression models show that breeding was weakly correlated with rain in 1989 and 1990.

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Enregistrement 357 de 695 - BA on CD July-December 1993
TI: Incubation behaviour of the African jacana.
AU: TARBOTON-W-R
SO: SOUTH AFRICAN JOURNAL OF ZOOLOGY 28(1): 32-39
PY: 1993
LA: English
AB: In African jacanas all parental care is by males. The male's daytime attendance of the nest (= incubation constancy) averages 53% and is characterized by frequent, short 'on' and 'off' shifts in which he leaves the nest, on average, 35 times per day.Ambient temperatures affect both the incubation constancy and the duration of 'on' and 'off' shifts: on the coldest ( hivin x =22,9 degree C) of 4 days of variable weather in which egg and ambient temperatures were monitored together with the male's incubation behaviour, the incubation constancy was 70,9%, the eggs were unattended 28,1%, the 'on' shifts were long ( hivin x =22,5 min) and the 'off' shifts short ( hivin x = 8,4 min). In contrast, on the hottest day ( hivin x = 31,3 degree C) the eggs were unattended 56,5% of the day; they were incubated 6,9% and shaded 36,6%. Both 'on' ( hivin x = 4,7 min) and 'off' ( hivin x= 6,3 min) shifts were short. At night, when the eggs were constantly incubated, their temperature remained constant at 34,1 degree C (SD = 0,4; n = 69) whereas in daytime their temperature ranged between a daily mean of 33,2-37,1 degree C (n = 4 days)and between extremes of 27,0-39,6 degree C. On a hot day ( hivinx = 30,0 degree C) when the male was prevented from shading the test egg its temperature reached a lethal level (43,8 degree C)in 30 min. It is suggested that the high ambient temperature prevailing in the African jacana's breeding range have facilitated the evolution of a uniparental care system in this species, but the males' unusual incubation behaviour associated with high temperatures may also have led to the high clutch predation rate found in this species.

Enregistrement 372 de 695 - BA on CD July-December 1993
TI: Variation in egg size of common eiders.
AU: SWENNEN-C; VAN-DER-MEER-J
SO: ARDEA 80(3): 363-373
PY: 1992
LA: English
AB: Egg size of Eiders Somateria mollissima was studied in the colony on Vlieland, The Netherlands, during six consecutive years. Mean length and breadth of 2476 eggs was 77.84 and 51.25 mm, respectively. Mean volume measured of 1882 of these eggs was 104.03 cm-3. A large variation in egg size was found, the volume of the smallest egg being only 53 of the largest one. Major factors influencing the size variation appeared to be differences between females and the position of the egg in the laying sequence of the clutch. Differences in egg size between females were not related to their body size. The first egg in a clutch was smaller than the second, but the last egg was the smallest.Also clutch size and age of the female contributed to the variation. Females produced smaller eggs as they grew older. Age affected the last eggs in the clutch more than the first ones.Mean egg size varied only slightly among years, though temperatures in winter and food conditions in spring varied considerably during the study.

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Enregistrement 373 de 695 - BA on CD July-December 1993
TI: Black-bellied sandgrouse (Pterocles orientalis) and pin-tailed sandgrouse (Pterocles alchata): Closely related species with differing bioenergetic adaptations to arid zones.
AU: HINSLEY-S-A; FERNS-P-N; THOMAS-D-H; PINSHOW-B
SO: PHYSIOLOGICAL ZOOLOGY 66(1): 20-42
PY: 1993
LA: English
AB: Sandgrouse of the genus Pterocles are good models for studying adaptations to deserts, with 14 species living in different parts of a habitat spectrum ranging from semiarid to extreme desert. To evaluate possible differences in bioenergetic and thermoregulatory ability within the group, we studied two species, black-bellied sandgrouse (Peterocles orientalis) and pin-tailed sandgrouse (Pterocles alchata). These two species are partly sympatric, but the latter also occurs in hotter and more arid regions than the former. Black-bellied sandgrouse had a mean resting metabolic rate (RMR) similar to the allometric prediction(5.53 mW g-1 by day, 5.04 mW g-1 at night; 97% and 110% of allometric prediction, respectively), whereas mean RMR in pin-tailed sandgrouse was lower than predicted (4.04 mW g-1 by day; 62% of allometric prediction). Similarly, the pin-tailed sandgrouse was the better thermoregulator of the two species,especially at high temperatures, with a well-developed evaporative cooling ability. At 40 degree C, evaporative heat loss ( ovrhdot H-e) dissipated 89% of metabolic heat production (ovrhdot H-m), and at 25 degree C, ovrhdot H-e was 152% of the allometric prediction. This compares to 53% at 40 degree C and 101% at 25 degree C for black-bellied sandgrouse. However, both species had high lower and upper critical temperatures, and metabolism at high ambient temperatures (T-a's) was relatively insensitive to increasing temperature. Black-bellied sandgrouse showed greatly increased thermal conductance (C-d) at high temperatures facilitating non evaporative heat loss. This species also demonstrated labile body temperature (T-b), especially at low T-a, allowing energy savings under cooler conditions. It was not possible to measure T-b for pin-tailed sandgrouse because of the birds' behavior.

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Enregistrement 374 de 695 - BA on CD July-December 1993
TI: Spatial dynamics of wintering lapwings and golden plovers in Britain and Ireland, 1981/1982 to 1983/1984.
AU: KIRBY-J-S; LACK-P-C
SO: BIRD STUDY 40(1): 38-50
PY: 1993
LA: English
AB: This paper analyses the distribution of Lapwings vanellus Vanellus and Golden Plovers Pluvialis apricaria in Britain and Ireland (UK) during the 1981/82, 1982/83 and 1983/84 winters,using data from The Atlas of Wintering Birds in Britain and Ireland and the Birds of Estuaries Enquiry. In the cold weather of 1981/82, the overall abundance of both species declined rapidly in early December, a period of sharply decreasing temperatures, and we consider that many birds probably left Britain and Ireland altogether. However, both species remained relatively abundant along the south coast of England at this time. When temperatures increased in late December and early January, Lapwings became more abundant in Britain and the northern parts of Ireland, though this was short-lived and numbers declined again when temperatures fell in the second week of January. Both 1982/83 and 1983/84 were relatively mild winters, and the distribution of both species remained approximately constant through both. Only in February 1983, when cold weather again prevailed, were there marked reductions in both species in their strongholds in eastern Britain. In all three winters, Lapwings were more abundant in Britain than in Ireland, but Golden Plovers were more abundant in Ireland.Possible reasons for this are discussed.

Enregistrement 383 de 695 - BA on CD January-June 1994
TI: Temperature regulation in neonates of shorebirds.
AU: Visser-G-H; Ricklefs-R-E
SO: Auk 110(3): 445-457
PY: 1993 (1994)
LA: English
AB: In the laboratory we determined cooling rates, resting and peak metabolic rates, and minimal thermal conductances in neonates of nine North American and five European shorebird species, with neonatal body masses between 4 and 55 g. We measured the initial (T-i) and final body temperature (T-f) of chicks during 30-min exposures to an ambient temperature (T-a) of 18 degree C. For each trial, the change in body temperature was converted to an index of homeothermy (H) by dividing the final temperature difference between the chick and surrounding air by the initial difference, such that H = (T-f - T-a)/(T-i - T-a).The interspecific relation between H and body mass (M; grams)could be described by H = 0.073 + 0.464 log-10(M). Among neonates, the interspecific relationships of effective net peak metabolic rate (peak metabolic rate minus the evaporative heat loss) to body mass could be described by PMR (W cntdot ind-1) =0.0161M-0.922, of minimal dry thermal conductance (minimal thermal conductance minus the evaporative heat loss) by h-na (W cntdot degree C-1 cntdot ind-1) = 0.0114M-0.399, and of the ratio between heat production and heat loss by PMR-n/h-na =1.412M-0.563. Thus, the higher degree of homeothermy in larger neonates could be explained by their more favorable ratio of heat production to heat loss. Peak metabolic rates of shorebird neonates were 1.9 times the resting metabolic rates in the zone of thermoneutrality. Rate of decrease in body temperature could be adequately simulated with a Newtonian cooling model that incorporated metabolic measurements corrected for evaporative heat loss. The degree of homeothermy of shorebird neonates appears to be related primarily to body mass. The occupation of cold, arctic regions during the breeding season by some species does not depend on adjustment of either minimal thermal conductance or thermogenic heat production by neonates, compared to other species that breed in more temperate climates.

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Enregistrement 384 de 695 - BA on CD January-June 1994
TI: Co-operative parental care: Contribution of the male rifleman (Acanthisitta chloris) to the breeding effort.
AU: Sherley-G
SO: Notornis 41(1): 71-81
PY: 1994
LA: English
AB: A colour-banded population of Riflemen at Kowhai Bush,Kaikoura, New Zealand was studied to determine the contribution of males to the care of young. Parental care and territorial behaviour were qualitatively the same throughout the breeding period. Males fed the females during courtship and in this way contributed the food required to produce the first clutch of eggs. Males made 66% of nest-building visits (early nests), spent 50% more time incubating than their mate by day (both clutches),leaving the females the thermo-insular advantage of incubating at night, always fed young significantly more often than their mate and contributed 55-77% of all food items fed to broods without helpers (the great majority of nests), and shared territorial defence equally with their mate. However, nest-building and territorial defence occupied less than 1% of parents' time early in the breeding season. One widower was unable to fledge young alone. Early season sex ratios for the years studied were (M:F)22:15, 50:35, 39:37 and 20:21 with extra males sometimes becoming helpers. The male's high parental effort was not reflected insignificantly lower survival to the next breeding season.Possible reasons for the large contribution by the mate Rifleman to the breeding effort are discussed.

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Enregistrement 392 de 695 - BA on CD January-June 1994
TI: Cavity-entrance orientation and nest-site use by secondary hole-nesting birds.
AU: Rendell-W-B; Robertson-R-J
SO: Journal of Field Ornithology 65(1): 27-35
PY: 1994
LA: English
AB: If cavity-entrance orientation confers some benefit (e.g.,thermoregulation of eggs and young) to secondary hole-nesting birds, individuals should use cavities with certain entrance orientations, and the orientation of a cavity's entrance should influence reproductive success. During a 2-yr study conducted at natural cavity populations in southeastern Ontario, Tree Swallows(Tachycineta bicolor) were found to prefer cavities whose entrances faced SSE, but the orientations of cavity entrances did not differ between pairs that fledged young and those whose breeding attempts failed. European Starlings (Sturnus vulgaris) did not show a preference for cavities whose entrance faced a specific compass direction. The conclusions of other similar studies ire reviewed and several reasons why research concerned with the influence of cavity-entrance orientation on nest-site use by secondary hole-nesting birds has yielded inconsistent conclusions are discussed.

Enregistrement 431 de 695 - BA on CD January-June 1994
TI: Seasonal changes of thermal conductance in Zonotrichia capensis (Emberizidae), from central Chile: The role of plumage.
AU: Novoa-F-F; Bozinovic-F; Rosenmann-M
SO: Comparative Biochemistry and Physiology A Comparative Physiology 107(2): 297-300
PY: 1994
LA: English
AB: Oxygen consumption and cooling curves of intact and defeathered rufous-collared sparrows (Zonotrichia capensis) from Central Chile were seasonally determined. The results obtained indicated that conductance values in Zonotrichia capensis are significantly lower during winter. Cooling curves in intact birds compared with defeathered animals also showed different seasonal ratios. The increase in plumage insulation and the consequent decrease of thermal conductance during winter (quality of plumage) may be an important compensatory adjustment to minimize higher demands during cold conditions.

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Enregistrement 432 de 695 - BA on CD January-June 1994
TI: Nutrient reserves, probability of cold spells and the question of reserve regulation in wintering canvasbacks.
AU: Lovvorn-J-R
SO: Journal of Animal Ecology 63(1): 11-23
PY: 1994
LA: English
AB: 1. Interpreting body mass and composition of wintering birds is often confounded by the inability to discriminate endogenous regulation of reserves from effects of proximate weather and food conditions. Endogenous regulation is thought to act through genetically controlled set-points that change throughout they ear, due to evolutionary adaptation to long-term probabilities of needing reserves at different times. 2. For canvasbacks (Aythya valisineria) wintering in upper Chesapeake Bay, coastal North Carolina, and Louisiana, I calculated over many years the probability of cold spells when canvasbacks likely depend on reserves. I then analysed whether the timing of such cold spells is predictable enough to form the basis for monthly schedules of endogenous reserve regulation in free-ranging canvasbacks. 3.Based on 41 years of data, probabilities of cold spells are higher at more northern sites. However, the timing of cold spells of different durations is not predictable at any latitude,providing little selective basis for genetic, time-dependent regulation of reserves on a monthly basis. 4. In North Carolina in 1983-84, the probability of surviving periods of fasting, as calculated from energy reserves and respirometry, decreased more than the probability of cold spells in midwinter, and less than the cold-spell probability in late winter. This suggests that reserves were not successfully regulated to maintain relatively constant mortality risk. Widely varying body mass patterns among years, and higher reserves at some southern sites than northern sites, indicate that canvasbacks maintain greater reserves if proximate conditions allow. 5. Mating and migration systems of many diving ducks (Aythya spp.) may disrupt genetic adaptation to specific wintering conditions because (i) pair bonds are mostly formed during spring migration so that mates have often wintered in different areas, (ii) offspring disperse to diverse wintering sites often different from those of their parents, and (iii)ducks often move long distances during winter in response to weather. 6. This analysis provides little evidence that endogenous schedules of nutrient reserves can be effectively tuned to monthly probabilities of cold spells at particular latitudes. Despite evidence for endogenous regulation in captive birds, it appears that free-ranging canvasbacks attempt to maintain high reserves throughout winter within constraints of proximate conditions.

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Enregistrement 433 de 695 - BA on CD January-June 1994
TI: Annual and long-term variation in the survival rates of British lapwings Vanellus vanellus.
AU: Peach-W-J; Thompson-P-S; Coulson-J-C
SO: Journal of Animal Ecology 63(1): 60-70
PY: 1994
LA: English
AB: 1. In many parts of Britain and in other parts of western Europe, the lapwing Vanellus vanellus is declining. In order to determine if the decline in numbers was associated with a reduction in adult or first-year survival rates, an analysis of British ringing recoveries was conducted. 2. There was no evidence that survival after the first year of life was age-dependent. 3. Mean annual adult survival (1930-88) is estimated at 0.705 +- 0.031 (+- 95% confidence intervals). Since 1960, adult survival has increased to 0.752 +- 0.046. Two weather variables (mean winter soil temperature and total winter rainfall) explained 69% of the variation in adult survival rates between 1961 and 1979. 4. Mean first-year survival (1930-87) is estimated at 0.595 +- 0.040 (+- 95% confidence intervals). As in the adults, the same two weather variables (mean winter soil temperature and total winter rainfall) explained 55% of the variation in first-year survival rates between 1959 and 1979. 5.In order to replace annual adult losses, lapwings should produce in the region of 0.83-0.97 fledglings per pair each year. From are view of the available literature, lapwings produced enough fledglings to maintain the population in only 8 out of 24 studies.

Enregistrement 438 de 695 - BA on CD January-June 1994
TI: The effects of parental age and weather on breeding performance of colonial and solitary tree sparrow (Passer montanus (L.).
AU: Sasvari-L; Hegyi-Z
SO: Acta Oecologica 14(4): 477-487
PY: 1993
LA: English
AB: 250 nestboxes were arranged, 25 with 50 m separations to simulate solitary breeding and 25 3-5 m apart to imitate colonial breeding in each of 5 plots in order to study tree sparrows(Passer montanus) in a suburban area of Budapest, Hungary (19 degree 04' E, 47 degree 41' N). Nestlings were marked with coloured rings and reproductive performance of parents which bred in their birth place was related to daily mean temperature and humidity between 1987-1992. Daily mean temperature affected the productivity of both colonial and solitary parents in first brood and that of colonial parents in second brood, daily mean humidity affected the breeding performance of colonial parents in first and second broods. No effect was recorded for third broods.Parents which produced fewer fledglings than average in previous broods produced more than average numbers of fledglings in second and third broods. It is suggested, that multibreeding with small clutches in each brood is an adaptive adjustment by tree sparrows to effects of fluctuating weather conditions. In first broods,when adverse weather conditions affect both colonial and solitary breeders, colonial nesting is more advantageous; in second broods, when weather conditions affect only colonial broods,solitary nesting is more advantageous for rearing offspring. The effect of female age on productivity was greater than that of male age. Pairs in which both parents or the female were in their first breeding season, reared fewer offspring than pairs in which females were older. The mean total productivity of subsequent broods was lower for parents which bred through three, four or five years than for the parents which bred only in first and second year in their birth place, i. e. low performance in early breeding activities results in good survival prospects in the tree sparrow.

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Enregistrement 442 de 695 - BA on CD January-June 1994
TI: The population size and breeding biology of the rook Corvus frugilegus in northern Finland.
AU: Rytkonen-S; Koivula-K; Lindgren-E
SO: Ornis Fennica 70(4): 202-212
PY: 1993
LA: English
AB: We studied the number and the breeding ecology of Rooks in the surroundings of Oulu, northern Finland (65 degree N, 25 degree 30'E) during 1987-1992. The number of breeding pairs was about 500 in 10 colonies. Non-breeding birds formed 15-35% of the population. Breeding started in mid April. Average clutch size(3.7) was only slightly smaller but the mean number of young produced (1.6 in successful nestings and 1.1 in all nests) was considerably smaller than in Middle Europe. The most productive clutch size varied between 4 and 6 annually. Early breeders had larger clutches and produced slightly more young than late breeders. Nest site did not affect breeding success; however,Rooks breeding in the top sites of multiple nested trees bred earlier and had larger clutches than others. Normally, repeat nesting was rare. Annual variation was very high, both in clutch and brood sizes. Mean May temperature and duration of ground frost appeared to predict rather well the forthcoming breeding success. Low success in cold springs may reflect reduced availability of earthworms (main food for the nestlings) due to the prolonged ground frost period. Nowadays, the Oulu population is at its largest, and has doubled during the last two decades.It seems that this increase can not be explained by the local reproduction, but has more obviously been based on immigration from the south and/or east. More information, especially ringing records, is needed to confirm this.

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Enregistrement 457 de 695 - BA on CD January-June 1994
TI: Demography of the cooperatively breeding splendid fairy-wren, Malurus splendens (Maluridae).
AU: Russell-E-M; Rowley-I
SO: Australian Journal of Zoology 41(5): 475-505
PY: 1993
LA: English
AB: We studied the demography of the splendid fairy-wren,Malurus splendens, a group-territorial, cooperative-breeding passerine, near Perth, Western Australia, from 1973 to 1990. This period included 13 years of below-average rainfall, a number of minor wildfires and one that burnt 95% of the study area in January 1985. Annual survival of breeding males (mean = 70%) and females (mean = 59%) was higher during a period without fire.Survival of breeding females fell to less than 50% from 1987 to 1989, two years after the major fire. Survival of adults did not vary with age, but survival of juveniles was lower (mean = 31%)and variable (range 11-59%), particularly among those produced in the first breeding season after the fire in 1985. Splendid fairy-wrens bred during the Austral spring, with minor variation in length of the breeding season depending on rainfall at the start and temperature at the end of the breeding season. Clutch size varied little, but females laid more clutches in years when predation or brood parasitism were high,

particularly in the two years after the major fire. Females produced a mean of 2.9 fledglings each season (4.7 in the best year), but productivity was low for several years after the 1985 fire. Helpers attended 60% of all nests but overall had little effect on annual fledgling production. Experienced females were more productive than novices, both with and without helpers. High reproductive effort, indexed by days nesting and caring for fledglings, did not reduce a female's chance of survival to the next breeding season, and annual reproductive effort was not correlated with female survival. Differential dispersal and mortality produced variation in the adult sex ratio. During the fire-free period 1978-84, the numbers of non-breeding males and females increased,because of a lack of available territories rather than a lack of available partners. Variation in natality and survival caused large variations in population density but the density of breeders was more constant (C.V. = 24%) than of helpers(C.V. = 57%). No decline in the population after the major fire of January 1985 was apparent until the 1988 breeding season; the number of groups declined from 1988 to 1990, some previously occupied territories became vacant and group size decreased. This delayed decline in population is attributed to decreased production of fledglings in the years after the fire and the gradual replacement of experienced breeding females by novices,which were less productive and suffered higher mortality. The major causes of demographic variation (brood parasites and fire)directly affected natality and juvenile survival; indirectly,population density, age structure, sex ratio and group composition were affected. Delayed dispersal, the proximate cause of cooperative breeding in splendid fairy-wrens, is favoured by this demographic environment. The widespread occurrence of similar demographic profiles may in part explain the high frequency of cooperative breeding in Australian birds.

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Enregistrement 459 de 695 - BA on CD January-June 1994
TI: Effects of weather and helpers on survival of nestling Red-cockaded Woodpeckers.
AU: Neal-J-C; James-D-A; Montague-W-G; Johnson-J-E
SO: Wilson Bulletin 105(4): 666-673
PY: 1993
LA: English
AB: Non-breeding adult Red-cockaded Woodpeckers (Picoides borealis), termed helpers, participate in many aspects of the nesting cycle, including feeding nestlings. Typically, groups that include helpers exhibit a higher nesting success and fledge more young than groups lacking helpers. We studied Red-cockaded Woodpeckers in the Ouachita National Forest in Arkansas in 1991 and 1992. In 1992, at the peak of the woodpecker nestling stage,eight of 10 unexpected deaths of nestlings older than six days posthatch occurred during 15 consecutive days of abnormally low temperatures (as low as 9 degree C) and elevated rainfall that reduced potential adult woodpecker foraging time by 26%.Altogether, during the abnormal weather of 1992, eight of nine nestlings survived in groups with helpers, whereas only seven of 14 survived in groups lacking helpers. In both years, woodpecker groups with helpers suffered fewer losses and fledged more young per nesting attempt (P = lt 0.001).

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Enregistrement 464 de 695 - BA on CD January-June 1994
TI: Evidence for the use of torpor by incubating and brooding Common Poorwills Phalaenoptilus nuttallii.
AU: Kissner-K-J; Brigham-R-M
SO: Ornis Scandinavica 24(4): 333-334
PY: 1993
LA: English
AB: Previous evidence suggested that avian species capable of entering deep torpor (hummingbirds and goat suckers) rarely if ever do so during the incubation or brooding period. This paper describes three instances where adult Common Poorwills Phalaenoptilus nuttallii, monitored remotely using radio-telemetry, did enter torpor while incubating or brooding.Our results indicate that although rare, entry into torpor is possible for reproductively active poorwills.

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Enregistrement 467 de 695 - BA on CD January-June 1994
TI: Incubation rhythms and mass loss of common goldeneyes.
AU: Mallory-M-L; Weatherhead-P-J
SO: Condor 95(4): 849-859
PY: 1993
LA: English
AB: We examined simultaneously incubation rhythms and mass loss of 16 female Common Goldeneyes (Bucephala clangula). On average,female goldeneyes spent 81% of the day incubating eggs, and took 2.7 recesses per day, each lasting an average of 114 min. Females began incubation approximately 20% heavier than the lowest body mass they reached over the incubation period, a slightly greater mass loss than predicted for ducks their size. Goldeneye incubation behaviors were similar to those reported for other Mergini, and were consistent with the general relationship between body size and incubation behavior in waterfowl. Females differed in how they varied their incubation behavior in response to incubation patterns on the previous day and environmental factors, although females typically responded to warmer temperatures by spending more time off the nest. Female goldeneyes appeared to manage their mass loss

by modifying their incubation behavior. Females tended to lose less mass on days following more substantial mass loss, and once females approached their minimum mass they spent more time off the nest. However,not all females were successful in this approach. Two females may have deserted their nests because they had relatively high mass loss ( gt 20%) and reached a low body mass (about 600 g), and thus could not maintain incubation sufficient to hatch their eggs without putting themselves at further risk.

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Enregistrement 482 de 695 - BA on CD January-June 1994
TI: A prudent hoarder: Effects of long-term hoarding in the European nuthatch, Sitta europaea.
AU: Nilsson-J-A; Kaellander-H; Persson-O
SO: Behavioral Ecology 4(4): 369-373
PY: 1993
LA: English
AB: Although hoarding has been studied intensively for many decades, few studies have attempted to measure its actual fitness consequences. To fill this gap, we used pitochronology, the growth of replacement feathers as a measure of nutritional status, and thus a reflection of starvation risk, of individual European nuthatches (Sitta europaea) during winter. We found that nuthatches are long-term hoarders, retrieving stored food up to at least 98 days after storing it. Long-term hoarding enhanced the nutritional status of individual birds significantly because those individuals experimentally given an opportunity to store seeds during autumn regrew plucked rectrices faster and larger than did control birds. Nuthatches used their stored seeds prudently by adjusting the amounts they ate to meet their requirements, as determined by ambient temperatures. Nuthatches refrained from using stored food during periods of relatively benign conditions so they could use the food during periods of more severe conditions.

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Enregistrement 487 de 695 - BA on CD January-June 1994
TI: Development of temperature regulation in shorebirds.
AU: Visser-G-H; Ricklefs-R-E
SO: Physiological Zoology 66(5): 771-792
PY: 1993
LA: English
AB: We studied the influence of body size on the development of temperature regulation in chicks of 10 North American and five European shorebird species belonging to the families Charadriidaeand Scolopacidae. Neonatal body mass ranged between 4 and 55 g,and asymptotic body mass ranged between 20 and 650 g. We measured the change in body temperature of chicks individually exposed for 30 min to ambient temperatures of 2 degree , 10 degree , and 18 degree C. An index of homeothermy for each species at each ambient temperature increased as a linear function of the logarithm of body mass. Before achieving homeothermy at 18 degree C, chicks of small species almost tripled their body mass from hatching, whereas chicks of the largest species increased their body mass by only 10%. In the five European species we studied the development of resting and peak metabolic rate, and minimal thermal conductance, as a function of body mass. The development of homeothermy resulted mainly from a strong increase in the maximum mass-specific heat production due to thermogenesis (peak metabolic rate minus resting metabolic rate in the thermoneutral zone). The latter phenomenon is linked with a parallel reduction of the relative growth rate of the chick. These results are consistent with the hypothesis of Ricklefs (1979), who suggested that well-developed muscle function is incompatible with a high relative growth rate.

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Enregistrement 495 de 695 - BA on CD 7/94-12/94
TI: The influence of season, temperature, and absorptive state on sage grouse metabolism.
AU: Sherfy-M-H; Pekins-P-J
SO: Canadian Journal of Zoology 72(5): 898-903
PY: 1994
LA: English
AB: We used indirect respiration calorimetry to measure the metabolism of six adult sage grouse (Centrocercus urophasianus) during winter, spring, and summer. During winter the metabolic rate of fed birds was higher (P lt 0.05) than that of fasted birds. The standard metabolic rate (SMR) of females (0.692 mL O-2cntdot g-1 cntdot h-1) was higher than of males (0.583 mL O-2cntdot g-1 cntdot h-1) in winter; in both sexes SMR was higher in winter than in summer. Females' SMR was lower (P = 0.0001) in spring than in winter. Lower critical temperatures of both males and females were substantially lower in winter (-0.6 degree C,-4.8 degree C) than in summer (14.9 degree C, 14.8 degree C).Although seasonally elevated, the SMR of sage grouse in winter is low in comparison with that of other galliforms with northern distributions. Thermoregulation during a winter night at -10 degree C would result in minimal ( lt 5%) expenditure of endogenous reserves by either sex. Thermoregulation and SMR in winter are more energetically costly to female sage grouse than to males, and may necessitate increased behavioral thermoregulation by females. Seasonal change in SMR differs between the sexes, and is probably influenced by the energetic demands of the breeding season.

Enregistrement 498 de 695 - BA on CD 7/94-12/94
TI: Interannual variation in the breeding biology of the Antarctic prion Pachyptila desolata at Bird Island, South Georgia.

AU: Liddle-G-M
SO: Journal of Zoology (London) 234(1): 125-139
PY: 1994
LA: English
AB: Interannual variation in aspects of the breeding biology of Antarctic prions was studied for three summers (1989-1992) at Bird island, South Georgia. Egg size, mass and incubation period remained constant. Laying, hatching and fledging were significantly delayed and less synchronous in 1991/92 (range of laying dates 51 days compared to 10- 15 days in the two other seasons). This was due to an unusually cold and protracted winter, with ice blocking burrows into the spring, restricting availability of nest sites. Brooding lasted longer in 1991/92 but the overall fledging period was unchanged. Skeletal growth rates did not vary amongst years; growth in mass was slower in 1989/90 but fledging mass was similar in all three years. In 1989/90 and 1991/92 later hatched chicks grew (in mass) faster. The survival of chicks from hatching to fledging did not vary amongst years or with hatching date. Feeding frequency was similar between years,once allowance had been made for starlit nights. Thus late and asynchronous breeding in 1991/92 did not result in reduced breeding success either through predation or starvation.Crustaceans formed 98-99% of the mass of the identifiable portion of regurgitated food samples. Significant annual variation was found within these crustaceans with the presence of krill (least in 1990/91) being inversely related to that of amphipods and copepods. There was no relationship between diet composition and chick growth or survival. Other seabird species, lacking the morphological specialization for feeding on copepods and amphipods, had very low breeding success in 1990/91, when krill was scarce.

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Enregistrement 504 de 695 - BA on CD 7/94-12/94
TI: Low temperatures affect the photoperiodically induced LH and testicular cycles differently in closely related species of tits (Parus spp.).
AU: Silverin-B; Viebke-P-A
SO: Hormones and Behavior 28(3): 199-206
PY: 1994
LA: English
AB: Photosensitive great tits (Parus major) and willow tits (P.montanus) were exposed to long days (20L:4D) under three different temperature conditions (+4, +10, and +20 degree C) in early winter. The two species showed significant differences in their LH and testicular reaction patterns to low temperatures.Testes showed pronounced growth cycles under all temperature regimes. For the willow tit, testes in birds kept at +20 degree Creached maximum size about 2 weeks earlier than testes in birds living under the two lower temperature regimes, whereas in the great tit testes reached maximum size at about the same time in all three groups. Low temperatures delayed the onset of testicular regression in both species. Plasma levels of LH did change with time in both species. However, the patterns of the induced LH-cycles in the three great tit groups differed significantly from each other, whereas this was not the case for the willow tits. The LH cycle was especially pronounced in great tits kept at +20 degree C. The initial LH peak in great tits kept at +4 and +10 degree C was about 50% lower than in great tits kept at +20 degree C. These results are discussed in relation to species differences in winter ecology and establishment of breeding territories.

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Enregistrement 505 de 695 - BA on CD 7/94-12/94
TI: Cold-induced calling and shivering in young American white pelicans: Honest signalling of offspring need for warmth in a functionally integrated thermoregulatory system.
AU: Evans-R-M
SO: Behaviour 129(1-2): 13-34
PY: 1994
LA: English
AB: Vocal regulation of body temperature in thermally dependent offspring can occur when cold-induced vocalizations elicit appropriate brooding and rewarming by a parent or surrogate. I tested the ability of young American white pelicans to regulate vocally body temperature in the laboratory by exposing them to moderate chilling (20-23 degree C), either continuously, or punctuated by brief (usually 2 min) periods of warmth in response to cold-induced calling. When continuously chilled, they began to call almost immediately (median latency 35 s), and body temperature began to drop. At 1 and 2 weeks of age, visible shivering also occurred, but was not sufficient to arrest the decline in body temperature. When chilling was then ameliorated by brief periods of warmth in response to cold-induced calling,body temperature shifted upwards, indicating a vocal thermoregulatory ability similar to, but somewhat faster, than that previously reported for late-stage embryos in this species.At 1 day of age, cold-induced calling occurred with a shorter latency and at a higher rate at lower body temperatures, as expected in a compensatory thermoregulatory system. After

the onset of shivering thermogenesis at 1 and 2 weeks of age, the compensatory response decreased, but calling still occurred in response to chilling, as required by a simple on-off regulatory system. Begging for food was inhibited at body temperatures low enough to elicit shivering, suggesting that vocal maintenance of a relatively high body temperature may be of importance to normal begging and food acquisition prior to the full development of endothermy in this species. Effective functioning of the vocal thermoregulatory system requires that information about offspring body temperature be accurate. This requirement suggests a strong parallel between vocal thermoregulation and the concept of honest signalling in animal communication. Honest signalling of need by offspring has received recent theoretical support, but is controversial and has rarely been tested experimentally. I used the occurrence of shivering, which is the main source of endothermic heat in birds, as a standard against which to test empirically the honesty of cold-induced calls as signals of need for warmth. When 1 and 2-week old chilled, shivering chicks began to warm up during vocal regulation sessions, shivering eventually became periodic, starting each time a bird was chilled and ending during each subsequent period of rewarming. Calling at this time invariably (84 of 84 cases) began only after the onset of shivering, then ended while shivering was still in progress. To the extent that shivering is an honest, perhaps unfakable indicator of a biologically relevant need for warmth, the vocalizations associated with it appear to be honest signals indicating the presence of that need. Results are also consistent with a recent theoretical model of honest signalling of need by offspring, but it remains to be determined whether honest solicitation of warmth prevails when chicks are in naturally competitive situations at the nest.

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Enregistrement 507 de 695 - BA on CD 7/94-12/94
TI: The cooling power of the pigeon head.
AU: St-Laurent-R; Larochelle-J
SO: Journal of Experimental Biology 194(0): 329-339
PY: 1994
LA: English
AB: Resting pigeons preheated to a stable core temperature of 43.2 degree C, which is within the range of body temperatures recorded during flight, were able to cool their body at high rates if their head and upper neck were exposed to an air stream at 23.5 degree C. The heat dissipation capacity of the head and neck, estimated from measurements made at a wind speed (100 km h-1) corresponding to fast flight, was 9.8 W, or 4.5 times the resting heat production. Since the greater part of this capacity,about 8 W, was attributable to the inner surfaces of the mouth,ram ventilation of the buccal cavity appears to be an important mechanism for increasing evaporative heat loss during flight.Accordingly, wind-assisted mouth cooling should be utilized by resting pigeons, since exposure to a slight breeze (approximately 10 km h-1) could augment their dissipating power by an amount equivalent to their resting metabolic rate. It is concluded that beak opening, together with a source of convection other than panting and gular flutter, is required to exploit fully the heat dissipation capacity of the buccopharyngeal mucosa of birds.

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Enregistrement 508 de 695 - BA on CD 7/94-12/94
TI: Seasonal acclimatization of thermoregulation in the Black-capped Chickadee.
AU: Cooper-S-J; Swanson-D-L
SO: Condor 96(3): 638-646
PY: 1994
LA: English
AB: Black-capped Chickadees (Parus atricapillus) show behavioral adaptations (food caching, cavity roosting) and can undergo regulated bouts of nocturnal hypothermia, both of which reduce costs associated with wintering in temperate latitudes. These adjustments could reduce the need for the seasonal metabolic adjustments found in other small passerines that must deal with severe winter cold. We have examined this possibility by determining the extent of seasonal variation evident in chickadees concerning standard metabolic rate, metabolic response to temperature, cold resistance, and maximal thermogenic capacity (ovrhdot VO-2-sum). Regression equations relating metabolism to air temperature below thermoneutrality did not differ significantly in either slope or Y-intercept between summer and winter, and neither did minimum thermal conductance for normothermic birds vary seasonally. Seasonal constancy in these parameters demonstrates the minor role that seasonal changes in insulation play in acclimatization in chickadees. However, winter birds tolerated cold stress far better than summer birds. This improved cold tolerance was associated with a significant increase in ovrhdot VO-2-sum (36%) in winter relative to summer.Standard metabolic rates (SMR) were also significantly increased in winter birds compared to summer birds. Thus, Black-capped Chickadees show seasonal metabolic acclimatization similar to, or greater than, other temperate wintering passerines in addition to behavioral adaptations and nocturnal hypothermia.

Enregistrement 512 de 695 - BA on CD 7/94-12/94
TI: Development of temperature regulation in young birds: Evidence for a vocal regulatory mechanism in two species of gulls (Laridae).
AU: Wiebe-M-O; Evans-R-M
SO: Canadian Journal of Zoology 72(3): 427-432
PY: 1994
LA: English
AB: Endothermic thermoregulation is absent in birds until after hatching, and usually requires several hours or days to become fully functional in the young. Cold-induced vocalizations that elicit brooding by a cooperative parent or surrogate constitute an additional thermoregulatory mechanism potentially available to neonates of some avian and probably some mammalian species. We show that newly hatched ring-billed gulls (Larus delawarensis) and herring gulls (Larus argentatus) exposed in the laboratory to moderate chilling (20 degree C) had a significantly improved ability to regulate body temperature when rewarmed (34 degree C)for brief, 4-min periods in response to cold-induced vocalizations. Spontaneous calling by unchilled yoked controls was ineffective in maintaining body temperature. When chicks reached 3 days of age, vocally regulated temperatures did not differ from that attained by thermogenesis, but vocally induced periods of rewarming reduced the duration of temperature challenge. The ability to regulate body temperature through vocalizations precedes the development of endothermy in gulls and other species so far examined, and in some species extends functional thermoregulation back to the late embryonic (pipped egg) stage of development.

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Enregistrement 513 de 695 - BA on CD 7/94-12/94
TI: Energetic benefits of communal roosting by Acorn Woodpeckers during the nonbreeding season.
AU: Du-Plessis-M-A; Weathers-W-W; Koenig-W-D
SO: Condor 96(3): 631-637
PY: 1994
LA: English
AB: We examined the thermal consequences, energy benefits and patterns of nighttime communal roosting in Acorn Woodpeckers (Melanerpes formicivorus) during the nonbreeding season, the period when they are most reliant on nutrient-poor acorn stores.Because the oak limbs (Quercus) in which Acorn Woodpeckers excavate roost cavities cool more slowly than the surrounding air, the nighttime temperature inside unoccupied woodpecker roost cavities averaged 4.3 degree C higher than the outside ambient temperature, when the latter was approximately 0 degree C. The temperature of occupied roosts was further augmented in proportion to the number of birds sharing the roost. A single woodpecker increased the cavity temperature an additional 1.2 degree C, whereas four birds increased it an additional 6.0 degree C. Acorn Woodpeckers did not huddle together at low air temperatures when placed in a simulated roost-cavity metabolism chamber. Consequently their nighttime, fasted oxygen consumption was independent of group size (one, two, or four birds) and was described by the relation: ml O-2/(g hr) = 3.33-0.055 T-a. From this relation and our cavity temperature measurements, we estimate that at an outside temperature of 0 degree C a single cavity-roosting woodpecker would reduce its heat loss by at least 9%; whereas four birds would reduce their heat loss by at least 17%, and even more in the presence of wind. This energy savings may contribute to the higher winter survival noted for male Acorn Woodpeckers that live in larger groups.

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Enregistrement 531 de 695 - BA on CD 7/94-12/94
TI: Annual and daily variation in body mass and fat of starlings Sturnus vulgaris.
AU: Meijer-T; Mohring-F-J; Trillmich-F
SO: Journal of Avian Biology 25(2): 98-104
PY: 1994
LA: English
AB: Seasonal and daily variation in body mass and fat was monitored in Starlings Sturnus vulgaris and related to the different phases of the annual cycle, to changes in temperature and daylength, and to Lehikoinen's (1987) models for body mass regulation of wintering birds. Lean mass and fat were estimated using total body electrical conductivity (TOBEC) and a combined fat score index for the abdominal and furcular visible fat-depots. With the fat score, lean mass and fat were estimated better (R-2 = 0.89 and 0.92, respectively) than with Walsberg's(1988) interspecific TOBEC (R-2 = 0.56 and 0.75), or our intraspecific Starling TOBEC (R-2 = 0.56 and 0.82). Lean mass for both sexes decreased over the breeding season, increased again during the first half of moult, and remained constant for the rest of the year (males 75 g and females 71 g). Seasonal changes in reserves and absolute amounts of fat were similar in males and females (8 g in winter and 2 g during moult). In early spring,female lean mass and fat increased by 7 g and 4 g, respectively,so that early in the breeding season females were 5 g heavier than males. Outside the breeding season, females were 4 g lighter than males. Evening body mass and fat were negatively correlated with the mean temperature of the preceding two to four weeks.During the whole year, nightly mass loss fluctuated between 5 and 6 g. Of the two

conditions of the "true winter fattening model"(Lehikoinen 1987), namely an increase of dawn body mass and of the amplitude of the daily mass cycle, only the first one was supported.

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Enregistrement 536 de 695 - BA on CD 7/94-12/94
TI: Effects of weather on hazel grouse reproduction: An allometric perspective.
AU: Swenson-J-E; Saari-L; Bonczar-Z
SO: Journal of Avian Biology 25(1): 8-14
PY: 1994
LA: English
AB: We analyzed the effects of weather during prelaying,incubation, and early chick periods on the reproductive success of Hazel Grouse Bonasa bonasia in southwestern Finland (14 years)and southern Poland (6 years). Reproductive success was most clearly correlated with weather during the prelaying period in both areas, with days of precipitation correlating negatively and temperature positively. We suggest that the availability of nutritionally rich food and the ability of the females to obtain it during the prelaying period, when the females are rapidly gaining mass and forming eggs, determine in large part the reproductive success of Hazel Grouse. A literature review suggested that this is generally true for small grouse species.The larger species, which have greater endogenous reserves and invest relatively less in their clutches, are less affected by prelaying weather conditions. Chicks of larger species have higher growth rates and energy requirements, however, which is probably the reason why the reproductive success of the larger species is more affected by weather during the early chick period.

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Enregistrement 548 de 695 - BA on CD 7/94-12/94
TI: The ontogeny of shivering thermogenesis in the red-winged blackbird (Agelaius phoeniceus).
AU: Olson-J-M
SO: Journal of Experimental Biology 191(0): 59-88
PY: 1994
LA: English
AB: The ontogeny of shivering thermogenesis was investigated in the altricial red-winged blackbird (Agelaius phoeniceus). Two indices of heat production - the rate of oxygen consumption (ovrhdot V-O-2) of the bird and the electromyographic (EMG) activity of the pectora is (PECT) and gastrocnemius (GAST) muscles - were measured simultaneously in adult and nestling red-winged blackbirds as they were subjected first to thermoneutral temperatures and subsequently to progressively colder ambient temperatures (Ta). The ontogenetic changes in both indices indicated that the capability for thermogenesis in nestling red-winged blackbirds improved markedly with age. The metabolic rates of 3-day-old nestlings decreased during exposure to gradually falling ambient temperatures: at best. these nestlings were only able to maintain mass-specific V-O-2 at levels similar to or slightly above the resting metabolic rate at thermoneutral temperatures (RMR) for a short time before metabolic rates decreased with further cooling. Shivering was detected only in the PECT muscles and was of a relatively low intensity (maximum of sevenfold increase in intensity over basal levels). The 5-day-old nestlings increased mass-specific ovrhdot V-O-2 modestly (approximately 1.4-fold) above RMR and attained slightly higher maximal factorial increases in the EMG activity of the PECT (maximum of 18-fold basal levels) when exposed to the same experimental conditions. Shivering was also detected in the GAST muscles of these birds. The most striking improvements in both measures observed during the nestling period occurred between day 5 and day 8. Eight-day-old nestlings increased metabolic rates by approximately 2- to 2.5-fold over basal level,and sustained these elevated rates for longer before becoming hypothermic. Both the PECT and GAST muscles contributed significantly to shivering thermogenesis, and these older nestlings attained much higher factorial increases in the intensity of shivering (up to 72-fold) during exposure to cold temperatures. In addition. both the range and magnitude of the dominant frequencies of muscle activity in the PECT increased during postnatal development. The PECT muscles were a principal site of shivering thermogenesis in all nestling and adult red-winged blackbirds studied here. Shivering in these muscles was a 'first line defense' against cold; the threshold temperature for shivering in the PECT muscles coincided with the lower critical temperature for oxygen consumption (T-LC), and the subsequent increases in EMG activity in this muscle with further cooling correlated well with the corresponding increases in mass-specific ovrhdot V-O-2.

Enregistrement 555 de 695 - BA on CD 7/94-12/94
TI: The decline of rockhopper penguins Eudytpes chrysocome at Campbell Island, Southern Ocean and the influence of rising sea temperatures.
AU: Cunningham-D-M; Moors-P-J
SO: Emu 94(1): 27-36
PY: 1994
LA: English
AB: Rockhopper Penguin Eudyptes chrysocome numbers at Campbell Island have declined by 94% since the early 1940s. Many breeding colonies have disappeared and the remaining nine major colonies have all shrunk in size. We estimate there were 103 000 breeding Rockhopper Penguins in 1985, compared with approximately 1.6 million in 1942. The decline had started by 1945, was greatest during the next ten years and coincided with substantial changes in sea temperatures. The mean December-February sea-surface temperature rose from 9.1 degree C in 1944 to peaks of 9.7 degree C in 1948-49 and 9.6 degree C in 1953-54. It declined to 8.6 degree C by 1965, rose rapidly to 10.2 degree C by 1970, and has averaged 9.7 degree C since then. In one colony, Rockhopper Penguin numbers temporarily increased after the cooler seas in the 1960s. We consider that rising sea temperatures are associated with the decline, which may have been caused by changes in the penguins' food supply; there is no evidence that terrestrial factors have been responsible.

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Enregistrement 558 de 695 - BA on CD 7/94-12/94
TI: Barn owl reproduction: Patterns and variation near the limit of the species distribution.
AU: Marti-C-D
SO: Condor 96(2): 468-484
PY: 1994
LA: English
AB: I studied reproduction of the Barn Owl (Tyto alba) in irrigated farmlands of northern Utah for 16 years documenting 391 nesting attempts. Most Barn Owls began nesting at one year of age and produced one brood per year. The owls rarely produced second broods or replaced failed first clutches. Complete first clutches averaged 7.17 eggs (n = 275). Replacement ( hivin x = 5.81, n =16) and second clutches ( hivin x = 5.79, n = 19) were significantly smaller than first clutches, but first ( hivin x =5.45) and second broods = 5.37) did not differ significantly.Replacement broods ( hivin x = 3.83) were significantly smaller than first. Of all nesting attempts 88% produced full clutches and 71% yielded at least one fledgling. Successful nests on average produced 5.09 fledglings per first brood, 4.94 per second brood, and 3.60 per replacement brood. Second attempts were more likely to produce fledglings than either first or replacement attempts. Sixty-three percent of all eggs laid hatched and 55%produced fledglings. Of eggs that hatched, 87% survived to fledging. March 13 was the mean date for initiation of egg laying and latest second clutches hatched on 4 October. Persistent snow cover and tow winter temperatures significantly delayed onset of egg laying and reduced the number and success of breeding attempts. Clutch size however, did not differ significantly among years or among nest sites.

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Enregistrement 559 de 695 - BA on CD 7/94-12/94
TI: Metabolic rate of American woodcock.
AU: Vander-Haegen-W-M; Owen-R-B-Jr; Krohn-W-B
SO: Wilson Bulletin 106(2): 338-343
PY: 1994
LA: English
AB: We measured metabolic rate of captive-reared American Woodcock (Scolopax minor) by indirect calorimetry. Basal metabolic rate (BMR) averaged 1.22 +- 0.18 ml O-2 g-1h-1 (N = 5).Lower critical temperature was 22 degree C. Below thermoneutrality, the relationship between metabolic rate (VO-2)and ambient temperature (T-a) was best described by the equation:VO-2 = 2.047 - 0.0375(T-a), (r-2 = 0.62, N = 29). Although BMR for American Woodcock was greater than that predicted by some generalized equations for non-passerines, it did not follow the elevated pattern for shorebirds predicted by the equation of Kersten and Piersma (1987). Lower BMR in American Woodcock may result from lower annual peaks of energy use compared to other shorebirds.

Enregistrement 560 de 695 - BA on CD 7/94-12/94
TI: The effects of food, nest predation and weather on the timing of breeding in tropical house wrens.
AU: Young-B-E
SO: Condor 96(2): 341-353
PY: 1994
LA: English
AB: I tested three hypotheses that could explain variation in the timing of breeding in populations of House Wrens (Troglodytes aedon) at four sites in Costa Rica. The sites were located at 200-1,500 m elevation on both sides and on top of the central mountain range, and had climates differing in temperature, the severity of the dry season, and total rainfall. For the first hypothesis, that breeding is timed to coincide with peaks in food availability, I monitored the monthly abundance of arthropod prey and wren clutch initiations at the four sites. Cross-correlation analysis showed that at three sites, wrens initiated clutches several months prior to when prey levels were high. Indeed,breeding began when prey levels were at their annual tow. At the fourth site, prey levels varied little throughout the year and House Wrens nested nearly year round. These results indicate that sufficient food to produce eggs or feed nestlings may have been available throughout the year. Breeding appeared to be timed so that juvenile dispersal and molt occurred when food was most plentiful. The second hypothesis, that breeding is timed to avoid seasons when nest predation is high, was not supported because the rate of nest predation did not vary temporally. The third hypothesis, that breeding is timed to avoid climatic events that can increase the physiological costs of reproduction, was not supported at the three lower elevation sites. Clutch initiation at the highest site, however, (lid not commence until the early dry season wind and mist subsided. The termination of breeding was not correlated with climatic changes at any of the sites.Thus reproduction in tropical House Wrens seems generally to be timed to facilitate post-breeding activities, not activities associated with nesting itself.

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Enregistrement 561 de 695 - BA on CD 7/94-12/94
TI: Thermal responses of late embryos and hatchlings of the Sooty Tern.
AU: Mathiu-P-M; Dawson-W-R; Whittow-G-C
SO: Condor 96(2): 280-294
PY: 1994
LA: English
AB: Oxygen consumption ( ovrhdot VO-2) and body temperature(T-b) of young Sooty Terns (Sterna fuscata) were measured during late incubation and in the first 24 hr after hatching at ambient temperatures (T-a) between 28 degree and 38 degree C and between 15 degree and 43 degree C, respectively. Evaporative cooling by hatchlings at T-a of 36 degree -43 degree C was also measured.Significant increases in embryonic metabolic level occurred between external and internal pipping and between internal pipping and establishment of a pip hole. However, despite the improving access to oxygen produced by these events, ovrhdot VO-2 and T-b both varied directly with T-a in an ectothermic pattern throughout the final stages of incubation. A capacity for sustained endothermy only became apparent in hatchlings. Their ovrhdot VO-2 varied inversely with T-a between 27.5 degree and 36 degree C to an extent indicating a modest capacity for regulatory thermogenesis. This served to maintain T-b above 35 degree C in this range of T-1. The apparent abruptness of the appearance of this regulatory capacity after hatching suggests that emergence from the physical confinement of the egg could be an important proximate factor in the establishment of endothermy in this semi-precocial species. Hatchting Sooty Terns underwent a progressive fall in T-b with declining T-a below 27.5 degree C.On the other hand, they appeared quite proficient at evaporative cooling with increasing T-a between 36 degree and 43 degree C.

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Enregistrement 563 de 695 - BA on CD 7/94-12/94
TI: Winter fattening in the dark-eyed junco: Plasticity and possible interaction with migration trade-offs.
AU: Rogers-C-M; Nolan-V-Jr; Ketterson-E-D
SO: Oecologia (Berlin) 97(4): 526-532
PY: 1994
LA: English
AB: Although fat often supplies the major source of metabolic fuel during winter fasts of birds, this critical life-history trait is little studied by ecologists. In the dark-eyed junco Junco hyemalis, we have in a series of studies investigated the extent of plasticity in the winter fat reserve. Earlier (Rogers et al. 1993), we reported (1) a highly variable pattern of geographic variation in the winter fat reserve of junco populations in eastern North America, (2) disappearance of statistically significant interpopulation variation after experimental displacement to a common latitude, and (3)post-displacement temporal variation in the fat reserve. In analyses reported here, recent temperature, recent snowfall (a measure of short-term predictability of resources), season(perhaps reflecting continued exposure to unpredictable resources) and daylength explained spatial variation in the fat store. Recent temperature explained temporal variation in the fat reserves of groups of displaced juncos. These results suggest that plasticity in a life-history

trait has evolved in an uncertain winter environment. Through environment-dependent fattening, the costs of fat can be avoided during warm periods and at locations where fat confers little benefit, whereas benefits of fat can be quickly gained if weather conditions become harsh and snowfall might restrict food. Three types of winter fatteners probably exist among birds: responders (fatten in response to the proximate environment), predictors (fatten in anticipation of long-term environmental conditions), and responder-predictors (combination of both types of regulation).Because dark-eyed juncos select different winter latitudes as they age, we hypothesize that the nonbreeding component of the life-history of juncos includes the co-adapted plastic traits of winter fattening and post-breeding migration. Life-history theory can apparently explain important traits related to fitness in the nonbreeding period.

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Enregistrement 568 de 695 - BA on CD 7/94-12/94
TI: Energy expenditure and water turnover of incubating ruddy turnstones: High costs under high Arctic climatic conditions.
AU: Piersma-T; Morrison-R-I-G
SO: Auk 111(2): 366-376
PY: 1994
LA: English
AB: To investigate whether shorebirds breeding in the High Arctic have relatively high rates of energy expenditure due to the harsh climatic conditions that prevail even in summer, we measured daily energy expenditure (DEE) and water turnover of Ruddy Turnstones (Arenaria interpres) during the incubation phase on Rowley Island in Foxe Basin, N.W.T., Canada, at 69 degree N,using the doubly-labeled-water technique. Simultaneously, we conducted detailed measurements of ambient climatic conditions,including in situ measurements with heated taxidermic mounts. A series of 11 doubly-labeled-water measurements with eight individual Ruddy Turnstones, of which at least seven successfully hatched eggs, yielded a mean DEE of 4.08 W. This is a relatively high value for a 108-g bird, equalling four times their basal metabolic rate (BMR). Most variation in DEE was attributable to standard operative temperature, which combines the effects of air temperature, wind and radiation on heal loss from the turnstone's point of view. On average, 25% of DEE was attributable to BMR,31% to the cost of thermoregulation, and 44% to the cost of activity. The average value for water turnover of 96.6 g/day is high compared to published values for other birds and confirms the large requirement for food (which is water-rich) of incubating Ruddy Turnstones. An analysis of the climatic conditions prevalent in Foxe Basin during the breeding seasons of Ruddy Turnstones, based on the 33-year period 1958-1990,indicated that they faced thermostatic hardships, defined as energy expenditure exceeding the maximum sustained working level(estimated at 4.5 times BMR), on 15% of the days. Climatic conditions were most severe in the early 1960s, but have improved since.

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Enregistrement 569 de 695 - BA on CD 7/94-12/94
TI: Communal cavity roosting in green woodhoopoes: Consequences for energy expenditure and the seasonal pattern of mortality.
AU: Du-Plessis-M-A; Williams-J-B
SO: Auk 111(2): 292-299
PY: 1994
LA: English
AB: Green Woodhoopoes (Phoeniculus purpureus) roost in cavities in groups throughout the year. It has been proposed that the energy savings achieved by roosting with conspecifics in a cavity could enable birds in poor body condition to remain normothermic during inclement weather, We tested the hypothesis that woodhoopoes conserve energy by roosting with conspecifics in cavities and found that a woodhoopoe roosting with four conspecifics can reduce its nighttime energy expenditure by 30%or more when the minimum ambient temperature is about 5 degree C.In areas where nocturnal temperatures sometimes drop below freezing, such energy savings are associated with mortality patterns among adults during winter. Our data support the idea that energy considerations may have been important in the evolution and/or maintenance of sociality in this species.

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Enregistrement 576 de 695 - BA on CD 7/94-12/94
TI: The contribution of helpers to feeding nestlings in grey-capped social weavers, Pseudonigrita arnaudi.
AU: Bennun-L
SO: Animal Behaviour 47(5): 1047-1056
PY: 1994
LA: English
AB: Data from feeding watches at nests of communally breeding grey-capped social weavers were used to examine the factors influencing feeding visit frequencies, food item size and the rate of food supply to the nestlings (feeding rate). Provisioning was not affected by environmental factors (time of day,temperature, rainfall, date and year) but nestling age, brood size and the number of birds feeding at the nest all had substantial effects. Having accounted for brood size

and nestling age, feeding visit frequency and feeding rate increased when more birds fed, although the mean size of food items declined. The contribution of a single helper significantly increased the feeding rate (corrected for other effects) both within and across nesting attempts, with mean increases of 20% and 7%,respectively. Helpers fed less frequently than the breeding birds but brought items of a similar size. Breeders did not reduce their feeding effort when helped. Helpers were recorded more often in the later part of the nestling period, when nestling food demands were highest. Paired and unpaired helpers made similar contributions, but paired helpers assisted only when they had no young to feed in their own nests. Higher nestling survival and rates of weight increase in nests with helpers seem likely to be a consequence of the extra food supplied.

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Enregistrement 578 de 695 - BA on CD 7/94-12/94
TI: Dual core and shell temperature regulation during sea acclimatization in gentoo penguins (Pygoscelis papua).
AU: Dumonteil-E; Barre-H; Rouanet-J-L; Diarra-M; Bouvier-J
SO: American Journal of Physiology 266(4 PART 2): R1319-R1326
PY: 1994
LA: English
AB: Penguins are able to maintain a high and constant body temperature despite a thermally constraining environment.Evidence for progressive adaptation to cold and marine life was sought by comparing body and peripheral skin temperatures,metabolic rate, and thermal insulation in juvenile and adult Gentoo penguins exposed to various ambient temperatures in air(from -30 to +30 degree C) and water (3-35 degree C). Juvenile penguins in air showed metabolic and insulative capacities comparable with those displayed by adults. Both had a lower critical temperature (LCT) close to O degree C. In both adult sand juveniles, the intercept of the metabolic curve with the abscissa at zero metabolic rate was far below body temperature.This was accompanied by a decrease in thermal insulation below LCT, allowing the preservation of a threshold temperature in the shell. However, this shell temperature maintenance was progressively abandoned in immersed penguins as adaptation to marine life developed, probably because of its prohibitive energy cost in water. Thus adaptation to cold air and to cold water does not rely on the same kind of reactions. Both of these strategies fail to follow the classical sequence linking metabolic and insulative reactions in the cold.

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Enregistrement 585 de 695 - BA on CD 7/94-12/94
TI: Potential effects of anthropogenic greenhouse gases on avian habitats and populations in the Northern Great Plains.
AU: Larson-D-L
SO: American Midland Naturalist 131(2): 330-346
PY: 1994
LA: English
AB: Biotic response to the build up of greenhouse gases in Earth's atmosphere is considerably more complex than an adjustment to changing temperature and precipitation. The fertilization effect CO-2 has on some plants, the impact UVB radiation has on health and productivity of organisms, arid the resulting changes in competitive balance and trophic structure must also be considered. The intent of this paper is to review direct and indirect effects of anthropogenic greenhouse gases on wildlife, and to explore possible effects on populations of bird sand their habitats in the northern Great Plains. Many of the potential effects of increasing greenhouse gases, such as declining plant nutritional value, changes in timing of insect emergence, and fewer and saltier wetlands, foreshadow a decline in avian populations on the Great Plains. However, other possible effects such as increased drought resistance and water use efficiency of vegetation, longer growing seasons, and greater overall plant biomass promise at least some mitigation. Effects of multiple simultaneous perturbations such as can be expected under doubled CO-2 scenarios will require substantial basic research to clarify.

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Enregistrement 586 de 695 - BA on CD 7/94-12/94
TI: Seasonal changes in body mass and use of torpor in a migratory hummingbird.
AU: Hiebert-S
SO: Auk 110(4): 787-797
PY: 1993 (1994)
LA: English
AB: In a study designed to determine seasonal patterns of body mass and torpor in Rufous Hummingbirds (Selasphorus rufus), birds were maintained for 12 months in the laboratory on a photoregime approximating that experienced by free-living birds. Ambient temperature cycled from 20 degree C during the day to 5 degree Cat night. Body mass, torpor, and rates of nighttime oxygen consumption were measured under conditions of ad libitum feeding in LD 12:12 in autumn (when free-living birds are normally migrating south), LD 12:12 in spring (during molt), and LD 16:8 in summer. Both body mass and use of torpor were highest in autumn, suggesting that torpor is not reserved for immediate energy crises at this time, but may be important in maximizing energy savings and thus minimizing the time

required for premigratory fattening. In spring, body mass was lowest; use of torpor, however, was significantly lower than in autumn,suggesting that torpor is used primarily for "energy emergencies"at this time of year. In summer, body mass was intermediate and use of torpor was also significantly lower than in autumn.Mass-specific rates of oxygen consumption during both normothermia and torpor were inversely related to body mass when data from all seasons were combined; large fat stores may contribute to lower metabolic rates by providing additional insulation, as well as by decreasing the proportion of highly metabolically active tissue in the body. Low fat stores also coincide with the molt, which itself may result in higher metabolic rates. Although the propensity for using torpor has a strong seasonal component that appears to reflect different energetic circumstances during such activities as migration and molt, Rufous Hummingbirds retain the ability to enter nocturnal torpor at all times of year, thus improving their chances of survival year-round.

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Enregistrement 589 de 695 - BA on CD 7/94-12/94
TI: Why do male belted kingfishers winter farther north than females?
AU: Pittaway-R
SO: Ontario Birds 12(1): 27-28
PY: 1994
LA: English

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Enregistrement 600 de 695 - BA on CD 1/95-6/95
TI: Delay of the autumn migratory period in the Blackcap (Sylvia atricappila) 1966-1993: A reaction to global warming?
AU: Bezzel-E; Jetz-W
SO: Journal fuer Ornithologie 136(1): 83-87
PY: 1995
LA: German
AB: Mistnet data and wing-lengths of Blackcaps trapped at the northern border of the Alps on their way from northern Europe southward showed a similar but shifted migration pattern in the two periods 1966-78 and 1987-93. The onset of the migration has delayed about one five-day period, the median is six days later.Simultaneously, in northern Europe mean temperatures in autumn have raised. The later onset of migration is interpreted as the prompt microevolutionary reaction to advantages caused by the warming of climate.

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Enregistrement 601 de 695 - BA on CD 1/95-6/95
TI: Impact of weather conditions on the reproductive success of great reed warbler Acrocephalus arundinaceus at Lake Mueggelsee,Berlin.
AU: Fischer-S
SO: Vogelwelt 115(6): 287-292
PY: 1994
LA: German
AB: The breeding success of Great Red Warblers was studied on Lake Muggelsee in Berlin for four years (1990-1993). Whereas there was no significant variability in mean clutch size between years ( hivin X = 4.61 to 4.88 eggs/clutch; n = 4 years) I found considerably lower values in the number of hatched and fledged young in 1990 and 1993 compared to 1991 and 1992. Years with low hatching and fledgling success had higher amounts of rain and more low temperature days during the breeding season than good years. Losses of nestlings occurred after long periods of rainfall combined with low temperatures and strong winds. The reasons were starvation and destruction of nests built in less viable reeds. If breeding seasons with extremely bad weather conditions are rare events, they will not have a negative influence on population development.

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Enregistrement 606 de 695 - BA on CD 1/95-6/95
TI: Temperature regulation of the great grey shrike (Lanius excubitor) in the Negev Desert-II. Field measurements of standard operative temperatures and behaviour.
AU: Ward-D; Pinshow-B
SO: Journal of Thermal Biology 20(3): 271-279
PY: 1995
LA: English
AB: Great grey shrikes (Lanius excubitor) are found over much of the Holarctic, including the most severe deserts in the Middle East. We measured operative environmental temperatures of great grey shrikes using unheated taxidermic mounts in the field in summer and winter, and calculated standard operative temperatures from these values. Resistance to heat loss in the shrikes was low compared to other small endotherms. Standard operative temperature lies within the thermoneutral zone throughout the shrikes' morning and afternoon foraging periods in summer. In winter,

standard operative temperature was below lower critical temperature throughout the day. We found no significant relationship between activity of these shrikes and standard operative temperature in winter.

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Enregistrement 607 de 695 - BA on CD 1/95-6/95
TI: Temperature regulation of the great grey shrike (Lanius excubitor) in the Negev Desert-I. Laboratory measurements of metabolic rate and evaporative water loss.
AU: Ward-D; Pinshow-B
SO: Journal of Thermal Biology 20(3): 263-269
PY: 1995
LA: English
AB: Great grey shrikes (Lanius excubitor, body mass = 55-65 g)are found over much of the Holarctic, including the most severe deserts in the Middle East. We examined their thermoregulatory characteristics to determine how they manage heat balance in a wide range of thermal conditions, particularly those experienced in the hot Negev desert of Israel. Great grey shrikes showed physiological characteristics similar to those found in most other passerine species of similar size, with two notable exceptions. (a) The rate of increase of evaporative water loss with increasing ambient temperature above their upper critical temperature was 40% higher than allometrically predicted for a bird of the same body mass and similar to that recorded for other desert-dwelling birds. (b) Body temperature in great grey shrikes increased with increasing ambient temperature within the thermoneutral zone; this controlled hyperthermia leads to a saving of water.

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Enregistrement 635 de 695 - BA on CD 1/95-6/95
TI: Factors associated with duck nest success in the Prairie Pothole Region of Canada.
AU: Greenwood-R-J; Sargeant-A-B; Johnson-D-H; Cowardin-L-M;Shaffer-T-L
SO: Wildlife Monographs 0(128): 1-57
PY: 1995
LA: English
AB: Populations of some dabbling ducks have declined sharply in recent decades and information is needed to understand reasons for this. During 1982-85, we studied duck nesting for 1-4 years in 17 1.6 by 16.0-km, high-density duck areas in the Prairie Pothole Region (PPR) of Canada, 9 in parkland and 8 in prairie.We estimated nest-initiation dates, habitat preferences, nest success, and nest fates for mallards (Anas platyrhynchos), gadwalls (A. strepera), blue-winged teals (A. discors), northern shovelers (A. clypeata), and northern pintails (A. acuta). We also examined the relation of mallard production to geographic and temporal variation in wetlands, breeding populations, nesting effort, and hatch rate. Average periods of nest initiation were similar for mallards and northern pintails, and nearly twice as long as those of gadwalls, blue-winged teals, and northern shovelers. Median data of nest initiation was related to presence of wet wetlands (contained visible standing water), spring precipitation, and May temperature. Length of initiation period was related to presence of wet wetlands and precipitation in May,June temperature, and nest success; it was negatively related overall to drought that prevailed over much of Prairie Canada during the study, especially in 1984. Mallards, gadwalls, and northern pintails nested most often in brush in native grassland,blue-winged teals in road rights-of-way, and northern shovelers in hayfields and small (lt 2 ha) untilled tracts of upland habitat (hereafter called Odd area). Among 8 habitat classes that composed all suitable nesting habitat of each study area, nest success estimates averaged 25% in Woodland, 19% in Brush, 18% in Hayland, 16% in Wetland, 15% in Grass, 11% in Odd area, 8% in Right-of-way, and 2% in Cropland. We detected no significant difference in nest success among species: mallard (11%), gadwall(14%), blue-winged teal (15%), northern shoveler (12%), and northern pintail (7%). Annual nest success (pooled by study area and averaged (unweighed) over all study areas) was 17% in 1982,15% in 1983, 7% in 1984, and 14% in 1985. We estimated that predators destroyed 72% of mallard, gadwall, blue-winged teal,and northern shoveler nests and 65% of northern pintail nests. In prairie, average nest success decreased about 4 percentage points for every 10 percentage points increase in Cropland, suggesting that under conditions of 1982-85, local population of these species probably were not stable when Cropland exceeded about 56%of available habitat. We found recent remains of 573 dead ducks during 1983-85; most were females (Anas spp.) apparently killed by predators. In some years, mallards and northern pintails were more numerous among dead ducks than we expected. More females than males were found dead among mallards and northern shovelers,suggesting higher vulnerability of females. Of factors we examined, nest-success rate appeared to be the most influential factor in determining mallard production. Nest success varied both geographically and annually.

Enregistrement 638 de 695 - BA on CD 1/95-6/95
TI: Embryonic and parental preferences for incubation temperature in herring gulls: Implications for parent-offspring conflict.
AU: Evans-R-M; Wiebe-M-O; Lee-S-C; Bugden-S-C
SO: Behavioral Ecology and Sociobiology 36(1): 17-23
PY: 1995
LA: English
AB: According to Trivers (1974), parent-offspring (P-O) conflict arises because offspring are selected to solicit more care than parents are selected to provide. However, should benefits fail to increase with increasing care, the offspring optimum can be reduced to the point where predicted P-O conflict vanishes. We examined offspring demand and parental care in such a benefit-limited system in herring gulls (Larus argentatus). In this species, parents typically neglect their last hatched (C-)egg during the final hours of hatching (pipped-egg stage),allowing mean temperature to drop by about 4 degree C, to near 33 degree C. Other studies indicate that no increased offspring benefit arises from increasing pipped egg incubation temperature above that level, but embryo damage occurs if temperature drop slower. In such a system, P-O conflict over preferred incubation temperature is predicted to be minimal or absent. We assessed phenotypic manifestations of conflict by determining incubation temperature preferences of parent and offspring independently.Temperature provided solely by parental initiative was 33.9 degree C (artificial eggs, corrected for embryonic heat production). Preferred incubation temperature of pipped embryos was measured by exposing them to moderate chilling (20 degree C)punctuated by 4-min periods of rewarming when they called.Temperature of vocally thermoregulating embryos stabilized around a mean of 32.9-33.4 degree C, about 0.5-1.0 degree C below parental preference. Acting independently, parents and embryos each maintained egg temperature at or near minimum developmentally safe levels. Results provided no evidence for phenotypic conflict, as predicted by a benefit-limited version of Trivers' P-O conflict model. Benefit limitation may also be relevant to P-O conflict in other contexts such as feeding of newly-hatched young.

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Enregistrement 641 de 695 - BA on CD 1/95-6/95
TI: Waterways bird survey; 1990-1991 population changes.
AU: Carter-S; Musty-L
SO: Bird Populations 1(0): 117-120
PY: 1993
LA: English
AB: With everyone's thoughts turned to the season ahead, the arctic feel of the first half of February 1991 took us all by surprise. Prolonged sub-zero temperatures, reaching down to -16 degree C, widespread drifting snow and freezing fog combined to produce dangerous conditions for birds, and many died from cold and starvation. But how badly were the numbers of resident birds affected? And what of our summer visitors? Contributors to the Waterways Bird Survey were out for the 18th consecutive year collecting the raw data to help us to investigate these key questions. Steve Carter and Lynette Musty report on the 1991 season for Britain's riparian birds.

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Enregistrement 644 de 695 - BA on CD 1/95-6/95
TI: Thermoregulation in a large bird, the emu (Dromaius novaehollandiae).
AU: Maloney-S-K; Dawson-T-J
SO: Journal of Comparative Physiology B Biochemical Systemic and Environmental Physiology 164(6): 464-472
PY: 1994
LA: English
AB: The emu is a large, flightless bird native to Australia. Its habitats range from the high snow country to the arid interior of the continent. Our experiments show that the emu maintains a constant body temperature within the ambient temperature range -5 to 45 degree C. The males regulate their body temperature about 0.5 degree C lower than the females. With falling ambient temperature the emu regulates its body temperature initially by reducing conductance and then by increasing heat production. At-5 degree C the cost of maintaining thermal balance is 2.6 times basal metabolic rate. By sitting down and reducing heat loss from the legs the cost of homeothermy at -5 degree C is reduced to 1.5 times basal metabolic rate. At high ambient temperatures the emu utilises cutaneous evaporative water loss in addition to panting.At 45 degree C evaporation is equal to 160% of heat production.Panting accounts for 70% of total evaporation at 45 degree C. The cost of utilising cutaneous evaporation for the other 30% appears to be an increase in dry conductance.

Enregistrement 647 de 695 - BA on CD 1/95-6/95
TI: Ventilatory accommodation of oxygen demand and respiratory water loss in a large bird, the emu (Dromaius novaehollandiae), and a re-examination of ventilatory allometry for birds.
AU: Maloney-S-K; Dawson-T-J
SO: Journal of Comparative Physiology B Biochemical Systemic and Environmental Physiology 164(6): 473-481
PY: 1994
LA: English
AB: Ventilation was studied in the emu, a large flightless bird of mass 40 kg, within the range of ambient temperatures from -5 to 45 degree C. Data for the emu and 21 other species were used to calculate allometric relationships for resting ventilatory parameters in birds (breath frequency = 13.5 cntdot mass-0.314;tidal volume = 20.7 cntdot mass-1.0). At low ambient temperatures the ventilatory system must accommodate the increased metabolic demand for oxygen. In the emu this was achieved by a combination of increased tidal volume and increased oxygen extraction. Data from emus sitting and standing at -5 degree C, when metabolism is 1.5 times and 2.6 times basal metabolic rate, respectively,indicate that at least in the emu an increase in oxygen extraction can be stimulated by low temperature independent of oxygen demand. At higher ambient temperatures ventilation was increased to facilitate respiratory water loss. The emu achieved this by increased respiratory frequency. At moderate heat loads(30-35 degree C) tidal volume fell. This is usually interpreted as a mechanism whereby respiratory water loss can be increased without increasing parabronchial ventilation. At 45 degree C tidal volume increased; however, past studies have shown that CO-2 washout is minimal under these conditions. The mechanism whereby this is possible is discussed.

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Enregistrement 661 de 695 - BA on CD 1/95-6/95
TI: Variation in the laying intervals of the Pied Flycatcher and the Redstart.
AU: Pulliainen-E; Jussila-P; Tunkkari-P-S
SO: Ornis Fennica 71(3): 109-114
PY: 1994
LA: English
AB: The egg-laying pattern of two nest-box breeders, the Pied Flycatcher Ficedula hypoleuca, and the Redstart Phoenicurus phoenicurus, was studied in a forested region in Finnish Lapland during 1986-1993. Laying schedule and laying order were examined,and hatching and fledging success recorded. The coldness of the spring of 1993, caused laying gaps in the Pied Flycatcher of which the longest intervals between laying two eggs were 2 times 11, 2 times 10 and 1 times 9 days. Long lying of the first-laid eggs in the nest, because of laying gaps, resulted in a low hatching success for these eggs. Egg laying lasted for two or three days until the female could interrupt her egg-laying after a drastic drop in the temperature. The Redstart, unlike the Pied Flycatcher, did not respond to the exceptionally low temperatures during the time of egg-laying. The effect of the cold temperatures on the egg-laying of the Pied Flycatcher may be less than the impact due to the scarcity of food, especially flying insects.

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Enregistrement 691 de 695 - BA on CD 1/95-6/95
TI: Development of vocal regulation of temperature by embryos in pipped eggs of Ring-billed Gulls.
AU: Evans-R-M; Whitaker-A; Wiebe-M-O
SO: Auk 111(3): 596-604
PY: 1994
LA: English
AB: Temperatures of Ring-billed Gull (Larus delawarensis) eggs during the hatching period indicate that parents allow their last-hatched embryos to cool to 36.8 degree C, about 2 degree C below first-hatched eggs. Temperatures of artificial last-hatched eggs, corrected upwards to take account of embryonic metabolic heat, averaged only 35.5 degree C, suggesting an active effect of live embryos on parental incubation. In the laboratory, embryos in pipped eggs vocalized strongly when body temperature dropped below 36 degree C. When cold-induced calls triggered 4-min periods of rewarming (vocal regulation), embryonic temperature stabilized. Vocally regulated temperature was independent of the duration of the rewarming periods over a range of 3 to 8 min, but increased significantly with embryonic development over the final day of incubation. During the final 12 to 18 h before hatching,most embryos were able to regulate vocally their body temperature at or above the level at which cold-induced hatching delays occur. Results are consistent with the interpretation that cold-induced vocalizations are honest signals of offspring need for warmth. Vocal thermoregulation by pipping embryos is a potentially adaptive mechanism facilitating the maintenance of safe embryonic temperature during the critical hours before hatching.

Enregistrement 692 de 695 - BA on CD 1/95-6/95
TI: Geographic and seasonal patterns of clutch-size variation in House Wrens.
AU: Young-B-E
SO: Auk 111(3): 545-555
PY: 1994
LA: English
AB: I report on geographic variation and seasonal decline in clutch size in House Wrens (Troglodytes aedon), a species that breeds throughout much of the New World. Nest records from British Columbia to Tierra del Fuego (n = 3,246 clutches) show that dutch size increases with latitude in both the Northern and Southern hemispheres. Seasonality of food resources, as measured by actual evapotranspiration (AE), does not explain much of the variation in clutch size, especially when controlling for latitude. This result shows that either seasonality is unimportant or that AE is a poor indicator of the food available to House Wrens. Seasonal decline in clutch size varies geographically such that in northern populations, clutch size declines much more rapidly during the breeding season than in low latitude populations. A model explaining this pattern, the offspring-survivorship hypothesis, predicts that the rate of seasonal decline in clutch size is related to the difference in survivorship between early- and late-fledged young. Field study in Monteverde, Costa Rica, showed that clutch size did not change seasonally and that late-fledged young were at least as likely to survive to the following breeding season as early-fledged young.This pattern is in contrast to North Temperate areas where dutch size declines sharply during the breeding season and late-fledged young are much less likely to survive to the following year than early-fledged young.

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Enregistrement 155 de 687 - BA on CD January - June 1993
TI: Interspecific comparisons of the foraging dynamics of black-backed orioles and black-headed grosbeaks on overwintering monarch butterflies in Mexico.
AU: ARELLANO-G-A; GLENDINNING-J-I; ANDERSON-J-B; BROWER-L-P
SO: NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY SCIENCE SERIES 0 (38): 315-322
PY: 1993
LA: English
AB: We compared the foraging dynamics of black-headed grosbeaks on overwintering colonies of monarch butterflies during two successive seasons in Mexico. By suspending nets within a colony, we intercepted bird-damaged butterflies as they fell to the ground. Based on damage patterns, we found a strong correlation between the two bird's predation rates over each season,which indicates that they feed synchronously in mixed flocks. In 1985, grosbeaks killed more monarchs than did orioles, whereas in 1986, we found the opposite, suggesting a reversal in the proportion of the two bird species in the mixed-specific flocks.Grosbeaks killed more males than females, while orioles killed both sexes equally. Daily variation in predation rate was large:11.4-fold for orioles and 15.8-fold for grosbeaks. This variation, 14 and 25%, respectively, could be attributed to temperature: More butterflies were eaten on cold days. A 4-day feeding cycle in the 1986 oriole data was incorporated into the regression equation and significantly increased the r-2 from 14 to 26%. We conclude that mortality caused by both birds as well as the period of the orioles' feeding cycle are strongly influenced by temperature.

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Enregistrement 157 de 687 - BA on CD January - June 1993
TI: Nesting biology of the aquatic warbler Acrocephalus paludicola in the Biebrza marshes (NE Poland).
AU: DYRCZ-A
SO: VOGELWELT 114(1): 2-15
PY: 1993
LA: English
AB: The study was carried out in 1986-1990 on a natural fen mire in the Biebrza river valley, the main breeding ground of the Aquatic Warbler in its entire distribution range. During the incubation, nest attendance ( hivin x = 11.1 minutes) and unattendance (hivin x = 5.1 minutes) periods are short-the shortest of all Passeriformes studied in this respect. Most likely this is an adaptation resulting from the small size of the Aquatic Warbler, its rapid metabolism, insect diet, relatively cool climate and the lack of help on the part of male during incubation.During the early phase of the nestling period the feeding intensity is lower than in other species of the genus Acrocephalus, which is connected with the necessity of uniparental female brooding without the male provisioning the female. The nestling period, the longest of all species of Acrocephalus studied, most often amounting to 15-16 days, may be associated with the slower rate of feeding during the first phase of the nestling period. A rapid decrease in the time devoted to brooding nestlings takes place between the 7-th and 8-th day of nestlings life which indicates that at that age the young acquire their thermoregulation ability.

Enregistrement 169 de 687 - BA on CD January - June 1993
TI: Geographical patterns of persistence in duck guilds.
AU: BETHKE-R-W
SO: OECOLOGIA (HEIDELBERG) 93(1): 102-108
PY: 1993
LA: English
AB: Geographical gradients of persistence in community structure have been suggested to be causally related to underlying gradients of species diversity, environmental variability and/or productivity. In order to test whether the persistence of breeding duck communities was dependent on any one of these three factors,thirty-three years of census data from the Canadian prairie and boreal forest regions was examined along geographical gradients of wetland habitat variability and productivity. For breeding ducks, locally derived patterns of persistence were generally independent of local habitat conditions. Persistence appeared to be related more to patterns of emigration and immigration in response to climatic conditions (i.e., drought) in the southern prairies than to local species richness, wetland habitat variability or productivity. It is suggested, therefore, that analyses of community persistence derived at small spatial scales may be of limited value if the structure of communities is not regulated by local conditions.

Section 7

Mots-clés: GIS and bird

**Section 7**

Mots-clés: GIS and bird

Enregistrement 1 de 12 - BA on CD January - June 1992
TI: The potential for conservation of Polynesian birds through habitat mapping and species translocation.
AU: FRANKLIN-J; STEADMAN-D-W
SO: CONSERVATION BIOLOGY 5(4): 506-521
PY: 1991
LA: English
AB: During the past several millennia, hundreds if not thousands of Polynesian (Pacific Ocean) land bird populations have been reduced or eliminated by human activities-direct predation, habitat alteration, and introduction of predators and pathogens.Many of the surviving populations and species of Polynesian land birds, particularly pigeons, doves, parrots, kingfishers, and passerines, are likely to become extinct within the next few decades unless we intervene to save them. One strategy is to translocate specie onto previously occupied islands, if the habitat is suitable and current human activities are compatible. In this study we evaluate a procedure for analyzing terrestrial habitats in a geographical information system (GIS) using aerial photographs, satellite imagery, topographic maps, and thematic maps. In the relatively simple island ecosystems of Atiu and Mitiaro (southern Cook Islands), mapping land cover and evaluating habitat suitability of land birds is straightforward; measures of the shape and spatial relationships of land, over patches are of limited value.Although the rate of land cover disturbance by people has not increased in recent times, even small disturbances can eliminate a significant proportion of preferred habitat for land birds. We suggest that, whenever possible, translocation efforts should focus on islands uninhabited by humans. The potential for successful translocation in the Cook Islands is limited to a few species. In Tonga, where more species of birds have been extirpated and where there are more uninhabited islands, the potential to reestablish viable land bird populations is much greater.

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Enregistrement 4 de 12 - BA on CD 1/95-6/95
TI: Potential effects of a forest management plan on Bachman's sparrows (Aimophila aestivalis): Linking a spatially explicit model with GIS.
AU: Liu-J; Duning-J-B-Jr; Pulliam-H-R
SO: Conservation Biology 9(1): 62-75
PY: 1995
LA: English
AB: By combining a spatially explicit individual-based population simulation model with a geographic information system, we have simulated the potential effects of a US Forest Service management plan on the population dynamics of Bachman's Sparrow (Aimophila aestivalis) at the Savannah River Site, a US Department of Energy facility in South Carolina Although the Forest Service's management plan explicitly sets management goals for many species, most of the prescribed management strategy deals with the endangered Red-cockaded Woodpecker (Picoides borealis)because of legal requirements. We explored bow a species (the sparrow)that is not the target of specific management strategies but that shares some habitat requirements with the woodpecker would fare under the management plan. We found that the major components of the proposed management plan may allow the sparrow population to reach and exceed the minimum management goal set for this species, but only after a substantial initial decline in sparrow numbers and a prolonged transition period. In the model, the sparrow population dynamics were most sensitive to demographic variables such as adult and juvenile survivorship and to landscape variables such as the suitability of young clear cuts and mature pine stands. Using various assumptions about habitat suitability,we estimated that the 50-year probability of population extinction is at least 5% or may be much higher if juvenile survivorship is low, We believe, however that modest changes in the management plan might greatly increase the sparrow population and presumably decrease the probability of extinction. Our results suggest that management plans focusing on one or a few endangered species may potentially threaten other species of management concern. Spatially explicit population models are a useful toot in designing modifications of management plans that can reduce the impact on non target species of management concern.

Enregistrement 5 de 12 - BA on CD 1/95-6/95
TI: Can bird atlas data be used to estimate population size? A case study using Namibian endemics.
AU: Robertson-A; Simmons-R-E; Jarvis-A-M; Brown-C-J
SO: Biological Conservation 71(1): 87-95
PY: 1995
LA: English
AB: An assessment of population size is a fundamental stage in the conservation of any species. The recent availability of data from the Southern African Bird Atlas Project (SABAP) provides a tool to investigate the status and distribution of approximately 900 bird species covered by this work. It is often assumed, but rarely shown, that bird atlas reporting rates provide a measure of relative abundance. Here, we go one step further to assess whether or not reporting rate can be used to establish absolute abundance and thereby produce estimates of population size. To do so,one must establish consistent relationships between reporting rates and bird densities from samples throughout the species' range, and then extrapolate those densities to all areas where the species occurs. Field transects were undertaken in the austral winter of 1993, across the distributions of most near-endemic birds in north-western Namibia. Density values obtained from the main riverine and upland zones inhabited by these species were used in combination with a Geographic Information System (GIS) and overlays of three spatial layers (vegetation, altitude and rainfall) to produce bird estimates for each sampled square.The relationship between reporting rate and abundance was investigated using log-linear regression for four species differing in size and habitat specialisation. We found significant relationships(p lt 0.005) for three of the four species and results marginally significant (p = 0.051) for the fourth, most cryptic,species. We conclude that reporting rates can be used to give reasonable estimates of abundance for some species, but careful consideration must be given to factors such as field sampling effort,detail of GIS overlays and particularly the quality of the original atlas data.

Section 8

Mots-clés: GIS and climate

**Section 8**

Mots-clés: GIS and climate

Enregistrement 6 de 30 - BA on CD July-December 1993
TI: Modeling the potential change in yield and distribution of the earth's crops under a warmed climate.
AU: LEEMANS-R; SOLOMON-A-M
SO: CLIMATE RESEARCH 3(1-2): 79-96
PY: 1993
LA: English
AB: The large-scale distribution of crops is largely determined by climate. We present the results of a climate-crop prediction model based on the U.N. Food and Agriculture Organization crop-suitability approach, implemented in a GIS (geographic information system) environment using several global environmental databases. The model utilizes daily temperature and soil moisture conditions to determine the properties of the growing period. Crops are characterized by their variety-specific minimum growing period requirements and photosynthesis and respiration properties. Temperature and radiation during the growing period control the development of each crop. The model simulates crop specific geographic distributions by demarcating the region where rain-fed productivity is possible. The model takes only non-irrigated crop productivity into account and the potential increase in productivity by technical means is not considered. The model therefore shows no potential yield in arid,irrigation-dependent regions. The simulated distributions of crops under current climatic conditions coincide largely with the current agricultural regions. Simulations with an atmospheric general circulation model (AGCM)-derived climate-change scenario illustrate changes in the agricultural potential. There are large regional differences in the response. Only high-latitude regions uniformly benefit from the climatic change with projected longer growing periods and an increased productivity. Most other regions, however, do not benefit significantly or even lose productivity after such change. In most of the latter regions differences in moisture availability control the change. The analysis shows that agricultural potential and impacts of climatic changes can be simulated comprehensively.

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Enregistrement 7 de 30 - BA on CD July-December 1993
TI: Rice production and climate change: Design and development of a GIS database to complement simulation models.
AU: BACHELET-D; HERSTROM-A; BROWN-D
SO: LANDSCAPE ECOLOGY 8(2): 77-91
PY: 1993
LA: English
AB: A cooperative project between the International Rice Research Institute in Los Banos, Philippines, and the U.S. EPA Environmental Research Laboratory in Corvallis, Oregon, was initiated to estimate how rice yield in Asia might be affected by future climate change and enhanced UV-B irradiance following stratospheric ozone depletion. A radiative transfer model was used to estimate daily UV-B irradiance levels using remotely sensed ozone and cloud cover data for 1274 meteorological stations.A rice yield model using daily climatic data and cultivar-specific coefficients was used to predict changes in yield under given climate change scenarios. This paper gives an overview of the data required to run these two models and describes how a geographical information system (GIS) was used as a data pre- or postprocessor. Problems in finding reliable data sets such as cloud cover data needed for the UV-B radiation model and radiation data needed for the rice yield model are discussed. Issues of spatial and temporal scales are also addressed. Using simulation models at large spatial scales helped identify weaknesses of GIS data overlay and interpolation capabilities. Even though we focussed our efforts on paddy rice, the database is not intended to be system specific and could also be used to analyze the response of other natural systems to climatic change.

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Enregistrement 8 de 30 - BA on CD July-December 1993
TI: Identification of areas of land degradation in the Peruvian Amazon using a geographic information system.
AU: LOKER-W-M; CARTER-S-E; JONES-P-G; ROBISON-D-M
SO: INTERCIENCIA 18(3): 133-141
PY: 1993
LA: English
AB: This paper presents a methodology for using a simple computer-based geographic information system (GIS) in applied agroecological research. The study identifies areas at risk of undergoing land degradation given current production practices and agroecological conditions. The study makes maximum use of secondary data (natural resource inventories, agricultural statistics, census data) combined with brief, well-focused field visits to characterize regional land use patterns and problems. This information is used to map the distribution of five prominent food crops in the Peruvian Amazon (rice, maize, beans,cassava and plantains) and to describe the predominant production systems common in the region. These production systems include rice-based irrigated agriculture, alluvial-based multi-cropping systems and

upland mixed production systems. Information on agroecosystems in the region is drawn from a CIAT-EMBRAPA study of the South American lowlands (Cochrane, et al. 1985) that uses soil, climate and topography to classify the region into relatively homogeneous land systems. These land systems are then classified in terms of their sensitivity to degradation based on their erodibility and levels of natural fertility. A low-cost GIS (IDRISI) is used to overlay patterns of land use relative to land system erodibility and fertility in order to identify areas at risk of undergoing land degradation. Four geographic sub-regions are identified as being at most at risk of land degradation given the nature of the production systems present and prevailing agroecological conditions. The nature of the land degradation process and how it varies between subregions is also analyzed. This information is used to suggest areas for further research on the environmental impacts of agriculture in the region under study. The strengths and weaknesses of GIS as a low-cost tool for agriculture research and planning are also evaluated. It is concluded that successful applications of GIS in this type of research depends on (1)the quality of the information available; (2) the degree of resolution (scale) that can be achieved given available information and the demands of the specific research problem under investigation, and; (3) the feasibility of carrying out limited field research to complement secondary data and to clarify and further characterize the nature of agricultural activities in a given region.

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Enregistrement 9 de 30 - BA on CD July-December 1993
TI: A simulated map of the potential natural forest vegetation of Switzerland.
AU: BRZEZIECKI-B; KIENAST-F; WILDI-O
SO: JOURNAL OF VEGETATION SCIENCE 4(4): 499-508
PY: 1993
LA: English
AB: Using empirical data (ca. 7500 phytosociological releves), a simple, probabilistic 'vegetation-site' model was developed,to simulate geographical distribution of 71 forest community types, representing the potential natural vegetation (PNV) of Switzerland. The model was interfaced to a geographic information system (GIS) and used to generate a numerical vegetation map, on the basis of digital maps of 12 environmental variables including climatic conditions (temperature and precipitation),topography (elevation, slope, aspect), and soil parameters (soil pH and physical soil parameters). The predicted distribution of forest communities was compared with several vegetation maps,prepared for some subregions of Switzerland by means of traditional field methods. Similarity ranged from 50 to 80%, depending on the community type, level of vegetational hierarchy and the geographical region. The current resolution and accuracy of the simulated vegetation map allows us to study the vegetational patterns on the level of the entire country or its major geographical and climatic regions. The simulated vegetation map is potentially an important tool in ecological risk assessment studies concerning the possible impacts of climate change on the ecological potential of forest sites and biological diversity of forest communities.

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Enregistrement 12 de 30 - BA on CD January-June 1994
TI: The impact of climate change on the soil/moisture regime of smooth mineral soils.
AU: MacDonald-A-M; Matthews-K-B; Paterson-E; Aspinall-R-J
SO: Environmental Pollution 83(1-2): 245-250
PY: 1994
LA: English
AB: The likely impact of climate change on the moisture regime of Scottish soils and consequently on agriculture and land use has been addressed using a novel Geographic Information Systems(GIS) approach. Current estimates of changes in summer precipitation by the year 2030 are 0% with an associated uncertainty of +-11%. This study considers the worst case scenario of a decrease in rainfall by 11% which will lead to some low rainfall areas experiencing an increased drought risk, particularly on lighter soils. Wet areas with heavy soils could benefit from an increase in the accessibility period for machinery. As the major agricultural land in Scotland is located on the relatively dry east coast where localized problems due to drought are not uncommon even under the present climate, the detrimental effects of a decrease in rainfall for the whole of Scotland are therefore likely to outweigh the benefits. Approximately 8% of Scotland has been identified in this study as soil/climate combinations which will be susceptible to drought should summer rainfall decrease by 11% and summer temperature increase by 1.4 degree C.

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Enregistrement 15 de 30 - BA on CD 1/95-6/95
TI: Climatic soil moisture deficit: Climate and soil data integration in a GIS.
AU: Matthews-K-B; MacDonald-A; Aspinall-R-J; Hudson-G;Law-A-N-R; Paterson-E
SO: Climatic Change 28(3): 273-287
PY: 1994
LA: English

Section 9

Mots-clés: insect activity and (weather or cold or heat or climate)

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Mots-clés: insect activity and (weather or cold or heat or climate)

Enregistrement 2 de 14 - BA on CD January - June 1993
TI: Population dynamics of the leopard moth, Zeuzera pyrina L.,and its control on olive trees in Egypt.
AU: ISMAIL-I-I; ABOU-ZEID-N-A; ABDALLAH-F-F
SO: ZEITSCHRIFT FUER PFLANZENKRANKHEITEN UND PFLANZENSCHUTZ 99 (5): 519-524
PY: 1992
LA: English
AB: The leopard moth, Zeuzera pyrina L., is on of the most serious pests attacking olive trees in Egypt. Therefore, this study was undertaken to gain a better knowledge of the population fluctuation of this pest and its control on olive trees.Emergence of moths started in the 2nd half of April and continued till December. During this period, four broods could be observed.East-northern direction of olive trees was preferable for moth emergence. Temperature proved to be the principal prevailing weather factor that influenced the moths activity, while relative humidity had a lesser effect. Spraying the olive trees with organophosphorus insecticides three times at 3-week intervals (the 1st application in the 2nd week of July) gave better control of the leopard moth and was more economic.

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Enregistrement 5 de 14 - BA on CD January-June 1994
TI: Insect pollination in carrot seed crop.
AU: Sinha-S-N; Chkrabarti-A-K
SO: Seed Research (New Delhi) 20(1): 37-40
PY: 1992 (1993)
LA: English
AB: The type and frequency of insect pollinators foraging the carrot seed crop and its impact on seed yield were studied for two years at Karnal. Insect activity was monitored at different hours of the day and its relationship with ambient temperature and RH was determined. Dipterans formed the single largest group among various insect pollinators, constituting 90% of the total population, of which sepsid flies were predominant (65%).Maximum activity of insect pollinators was observed at 1000 h. A close relationship was obtained between the insect activity and prevalent weather conditions. 25 to 33% higher seed yield was recorded in the open pollinated plants as compared to the caged ones where the insect activity was excluded.

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Enregistrement 7 de 14 - BA on CD 7/94-12/94
TI: Cone and seed insect phenology in a Douglas-fir seed orchard during three years in western Oregon.
AU: Schowalter-T-D
SO: Journal of Economic Entomology 87(3): 758-765
PY: 1994
LA: English
AB: Seasonal patterns of cone and seed insect activity and seed loss relative to cone production and weather patterns were examined over a 3-yr period in a Douglas-fir, Pseudotsuga menziesii (Mirbel) Franco, seed orchard in western Oregon. Six insect species showed distinct patterns of occurrence and cone or seed damage during this period. A weevil, Lepesoma lecontei (Casey); the Douglas-fir cone gall midge, Contarinia oregonensis Foote; and two lepidopterans, Barbara colfaxiana Kearfott and Dioryctria abietivorella (Grote), damaged cones or seed exposed during late April each year. The Douglas-fir seed chalcid, Megastigmus spermotrophus Wachtl, damaged seed in cones exposed during May and June; western conifer seed bug, Leptoglossus occidentalis Heidemann, was most damaging in cones exposed July-August.