

INDEX TO VOLUME 44

Compiled by BRIAN A. HARRINGTON

AND THE

MANOMET BIRD OBSERVATORY

This index is for new papers published in this volume of *Bird-Banding* as well as a subject and species index to papers reviewed in Volume 44 Recent Literature sections, and a title and author index to book and monograph reviews. Items indexed from Recent Literature are identified by (r), those from books and monographs by (rev.).

- Acanthis flammea*, sex determination, 13-21
A. hornemanni, sex determination, 13-21
Accipiter gentilis, mercury contamination, 72(r)
A. nisus, migration and banding, 67(r)
 Activity patterns, see behavior
Aegolius acadicus, sense of touch, 125
AGE, CRITERIA
 Grosbeak, Evening, 240(r)
 Flycatcher, Western, 205-220
 Jay, Beechey, 81-90
 —, Bushy-crested, 81-90
 —, San Blas, 81-90
 —, Yucatan, 81-90
 Mockingbird, 62, 124
 Ovenbird, 239-40
 Puffin, Common, 238(r)
 Vireo, White-eyed, 63
 —, **LIFE EXPECTANCY AND LONGEVITY**
 Birds, 66(r)
 Bluebird, nestlings, 110-123
 Bobolink, 57-58
 Finch, Purple, 227
 Hawk, Sparrow, 66(r)
 Honeyeater, Fuscous, 127(r)
 —, White-naped, 127(r)
 Longevity records, 319(r)
 Mortality and weather, 61-62, 67(r), 110-123
 Osprey, juveniles, 180-186
 Parulidae, 221-224
 Pelican, White, 66(r)
 Scaup, Greater, 127(r)
 Stilt, Black-winged, 67(r)
 Tern, Caspian, 127(r)
 —, Common, 65
 Waterfowl, 68(r)
 —, **STUDIES OF KNOWN-AGE BIRDS**
 Bobolink, 57-58
 Western Flycatcher, migration 205-220
 Mockingbird, movements, 62
Agelaius phoeniceus, populations and migration, 68(r)
 —, recognition of eggs, young, and nests, 130(r)
 —, changes of seasonal breeding behavior, 70(r)
Alca torda, New England population changes, 267-313
 Alison, R. M. Delayed nesting in Oldsquaws. 61-62
 Allen, R. T., and F. C. James (eds.). A symposium on ecosystematics (rev.), 135-136
Amblyornis, distribution, taxonomy, 327(r)
Anas acuta, distribution, 240(r)
cybeata, reproduction, 233(r)
platyrhynchos, gamma radiation of —, 73(r)
 —, heat loss when oiled, 323(r)
 Anatidae, sound production, 239(r)
 —, summer migrations, 128(r)
 —, traps, 230(r)
ANATOMY AND PHYSIOLOGY
 Air-sacs, *Anhinga* and *Phalacrocorax*, 236(r)
 Avian retina, ultrastructure, 238(r)
 Blood sugar, migrants and residents, 237(r)
 Extraocular muscles, 74(r)
 Eyes, UV light damage, 324-25(r)
 Growth and gamma radiation, 73(r)
 Hearing, neural centers, 74(r)
 Heart rate, 73(r)
 Heat loss, oiled ducks, 323(r)
 Migrants, body fat chemistry, 237(r)
 Mortality, gamma radiation, 73(r)
 Nest temperatures, 237(r)
 Neuro-hormonal heat regulation, 324(r)
 Pecten oculi, function, 324(r)
 Pigeon's milk, nutrition, 73(r)
 Rearing young, energy expended, 73(r)
 Syrinx, 239(r)
 Toe pads, 325(r)
 Tongue structure, 325(r)
Anhinga, see *Anhinga anhinga*
Anhinga anhinga, air-sac system, 236(r)
 Antbird, Spotted, see *Hylophylax naevoides*
Apteryx australis, chick biometrics, 325(r)
Apus apus, migration and night flights, 319(r)

- A. pacificus*, food, 241(r)
Ardea herodias, breeding biology, 320-21(r)
Athene noctua, taxonomy, 326-27(r)
- AVICULTURE
 Caique, Blue-headed, 322(r)
Aythya fuligula, activity and feeding, 70(r)
- A. marila*, heat loss when oiled, 323(r)
 —, longevity, 127(r)
- Band loss, see banding
- BANDING, BAND LOSS
 Fulmar, 127(r)
 Gull, Red-billed, 67(r)
- , COMPUTERIZED RECORDS, 187-195, 249-257
- , RECOVERIES
Accipiter nisus, 67(r)
 Australian birds, 127(r)
 Finch, Purple, 227
 Pintail, 240(r)
 Siskin, Pine, 227-228
 Tern, Common, 127(r)
 —, Royal, 240-41(r)
- , REPORTS
 Barn Owls in Australia, 231(r)
 Galapagos Islands, 230(r)
 Gulls in Montana, 231(r)
 South Africa, 230(r)
- , RETURNS
 Finch, Purple, 227
 North American birds in Mexico, 228-229
 North American Parulidae in Jamaica, 221-224
- , STATIONS, 66(r)
- , TECHNIQUES
 Statistics, 66(r)
 Tattooing nestlings, 63
 Worksheets, 230(r)
- , TRAPS AND NETS
 For Anatidae
 Cannon net, 66(r), 67(r)
 Live trap, 66(r)
 Nest box trap, 56-57
- BEHAVIOR, ACTIVITY PATTERNS
 Duck, Tufted, 70(r)
 Magpie, Yellow-billed, 321(r)
- , ANTING, 234(r), 322(r)
- , COMPARATIVE
 Ciconiidae, 321(r)
- , DOMINANCE AND AGGRESSION
 Interspecific, see ecology
 Sparrow, White-throated, 314-15
- , FLOCKING
 Cowbirds, 315-16
 Grackle, Common, 315-16
 Jay, Piñon, 69(r)
 Starling, 315-16
- , FORAGING, see food and feeding
- , GENERAL
 Antbird, Spotted, 75-76(r)
 Hummingbirds, hermit, 322(r)
- , MAINTENANCE
 Burrow-digging, Barn Owl, 59-60
 Cliff-nesting behavior, Kittiwake and Herring Gull, 322(r)
 Dustbathing, Bobwhite, 234(r)
 Food-holding with feet, 91-99
 Huddling, 238(r), 321(r)
 Sleep, Burrowing Owl, 234(r)
 —, Domestic Pigeon, 234(r)
 Thermoregulatory, 24, 59-60
- , PAIRING
 Grackle, Boat-tailed, 68(r)
- , PLAY, 321(r)
- , POSTURES
 Food-holding, 91-99
 Footedness, 24, 94
 Unipedal, 22-26
- , RECOGNITION
 Nests, eggs and young, Red-winged Blackbird, 70(r), 130(r)
- , ROOSTING
 Blackbirds, 315-16
- , TERRITORIAL, see territory
- , TOOL USE
 Cormorant, Double-crested, 130(r)
 Jay, Blue, 321(r)
 Sittella, Orange-winged, 129(r)
 Bergstrom, Edward Alexander.
 Tributes to—, 153-157
- Bittern, American, see *Botaurus lentiginosus*
- Blackbird, Red-winged, see *Agelaius phoeniceus*
- Blindfolds, see orientation
- Bluebird, Eastern, see *Sialia sialis*
- Bobolink, see *Dolichonyx oryzivorus*
- Bonasa umbellus*, parasites of—, 72(r)
- Botaurus lentiginosus*, caught by pelecypods, 65
- Bowerbirds, gardiner, see *Amblyornis brachyramphus marmoratum*, distribution, 326(r)
- Bray, O. E. et al. Migration and seasonal distribution of Common Grackles banded in North and South Dakota. 1-12
- Breeding seasons, see nesting and reproduction.
- Breeding success, see nesting and reproduction
- Brooks, W. S. A tentative key for sex determination of Common Redpolls (*Acanthis flammea*) in the northern United States during winter. 13-21
- Browder, J. A. Long-distance movements of Cattle Egrets. 158-170
- Bubulcus ibis*, feeding rates, 158-70
- , foraging success, 327(r)
- , long-distance movements, 158-70
- , starvation, 158-70
- Bucephala* sp., possible hybrids, 326(r)
- Bulbuls, see *Pycnonotidae*
- Bunting, Lazuli, see *Passerina amoena*
- , Painted, see *Passerina ciris*

- , Reed, see *Emberiza schoeniclus*
 Caigue, Blue-headed, see *Pionites melanocephala*
Calidris alpina, classification, 241(r)
Capella gallinago, banding worksheet, 230(r)
Carpodacus purpureus, longevity and distant movement, 227
Cassidix mexicanus, breeding success, territorial behavior, 68(r)
 —, food habits, 134(r)
Cepphus grylle, New England population changes, 267-313
 Chaffinch, see *Fringilla coelebs*
 Chat, Yellow-breasted, see *Icteria virens*
Chen hyperborea, arctic fox relationships, 128(r)
 Ciconiidae, comparative ethology, 321(r)
Clangula hyemalis, delayed nesting, 61-62
 Clark, G. A., Jr. Unipedal postures in birds. 22-26
 —. Holding food with the feet in passerines. 91-99
 Clutch size, see nesting and reproduction
Colaptes auratus, nest spacing and timing, 317-18
 Coliidae, food-holding with feet, 96
Colinus virginianus, dustbathing, 234(r)
Columba livia, orientation in flight, 102-109
 —, sleep, 234(r)
 Columbidae, food-holding with feet, 96
 COMPETITION, FOOD
 — Blackbirds and waterfowl, 68(r)
 —, NEST SITES
 — Bluebird, Eastern, 110-123
 — Woodpecker, Pileated, and Screech Owl, 316
 Computer records, see banding
 Conner, R. N. Screech Owl displaces nesting Pileated Woodpeckers. 316
 Cormorant, Double-crested, see *Phalacrocorax auritus*
Corvus coronoides, storing food, 70(r)
Coturnix japonica, effects of chemical pollutants, 237(r)
 Cowardin, L. M., and D. A. Davenport. Computerized system for organizing and maintaining files of banding data. 187-195
 Cowbird, see *Molothrus ater*
 Crow, see *Corvus*
 Cocho, New Zealand Long-tailed, see *Eudynamis taitensis*
 Cuculidae, food-holding with feet, 96
 Cuthbert, F. J., and W. E. Southern. Ring-billed Gull relocates nest as a result of egg displacement. 225-227
Cyanocitta cristata, tool use, 321(r)
Cyanocorax beecheii, age and sex criteria, 81-90
C. melanocyanea, age and sex criteria, 81-90
C. sanblasiana, age and sex criteria, 81-90
C. yucatanica, age and sex criteria, 81-90
 Davenport, D. A., see Cowardin, L. M., and —
 DeGrazio, J. W., see Bray, O. E., and —
Dendragapus obscurus, predation on—, 322(r)
Dendrocopos pubescens, age-related eye color, 100-101
Dendrocygna cytoni, tongue structure, 325(r)
Dendroica caerulescens, kills in central Florida, 258-66
 —, winter area fidelity and survival, 221-224
D. coronata, winter returns, Jamaica, 221-224
D. discolor, winter returns, Jamaica, 221-224
D. dominica, winter returns, Jamaica, 221-224
D. magnolia, winter returns, Mexico, 228-229
D. pennsylvanica, winter returns, Jamaica, 221-224
D. pharetra, winter returns, Jamaica, 221-224
D. pinus, winter returns, Jamaica, 221-224
D. striata, kills in central Florida, 258-266
D. tigrina, kills in central Florida, 258-266
 Diamond, A. W., and R. W. Smith. Returns and survival of banded warblers wintering in Jamaica. 221-224.
 Diesselhorst, G. Khumbu Himal (rev.) 242
 Distribution, see Zoogeography and —
Dolichonyx oryzivorus, longevity and breeding, 57-58
 Drury, W. H. Population changes in New England seabirds. 267-313
Dryocopus pileatus, nesting displacement, 316
 Duck, Common Eider, see *Somateria molissima*
 —, goldeneye, see *Bucephala* sp.
 —, Greater Scaup, see *Aythya marila*
 —, Mallard, see *Anas platyrhynchos*
 —, Pintail, see *Anas acuta*
 —, Plumed Whistling, see *Dendrocygna cytoni*
 —, Ruddy, see *Oxyura jamaicensis*
 —, Shoveller, see *Anas clypeata*
 —, Tufted, see *Aythya fuligula*
 Ducks, see Anatidae

- Dunlin, see *Calidris alpina*
- Eagle, White-tailed, see *Haliaeetus albicilla*
- ECOLOGY, INTERSPECIFIC RELATIONSHIPS
- In St. Croix, 234(r)
- In Puerto Rico, 234(r)
- , GENERAL
- Arctic-nesting birds, 322(r)
- Pied Flycatcher breeding, 235(r)
- Hermit hummingbirds, 322(r)
- Piñon Jay, 69(r)
- Mat-grassland birds, 235(r)
- Egret, Cattle, see *Bubulcus ibis*
- , Snowy, see *Leucophox thula*
- Ely, C. A. Returns of North American birds to their wintering grounds in southern Mexico. 228-229
- Emberiza schoeniclus*, biogeography, 240(r)
- Empidonax difficilis*, migration, age and sex ratios, 205-220
- E. flaviventris*, winter returns in Mexico, 228-229
- E. minimus*, winter returns in Mexico, 228-229
- ENVIRONMENTAL QUALITY
- Bird deaths by human litter, 322(r)
- Chemical influence on egg production, 237(r)
- Eggshell thinning, owls, 72(r), 323(r)
- , White-tailed Eagle, 236(r)
- Heat loss in oiled ducks, 323(r)
- Oiled bird care, 72(r)
- Mercury contamination, 72(r)
- Erskine, A. J., Buffleheads (rev.), 242-43
- Eudynamis tailensis*, parasitic and predatory habits, 129(r)
- EVOLUTION AND GENETICS
- Caryotypes of Turdidae, 132(r)
- Evolution of the genus *Tetraoaltus*, 241(r)
- of predator-prey systems, 319(r)
- of gardiner bowerbirds, 327(r)
- Falco sparverius*, breeding biology, 69(r)
- , longevity, 66(r)
- , predator of Bank Swallows, 327-28(r)
- FALCONIFORMES
- Autumn counts in N. J., 231(r)
- Autumn counts in Penna., 231(r)
- Food-holding with feet, 96
- Foraging by three species, 328-29(r)
- Winter population trends, 233(r)
- Farner, D. S., and J. R. King (eds.), Avian biology, vol. 2 (rev.), 329-31
- FEATHERS
- Filoplumes in petrels and shearwaters, 238(r)
- Substructure, iridescent feathers, 325(r)
- Water-holding, Sandgrouse feathers, 325(r)
- Finch, Purple, see *Carpodacus purpureus*
- Finfoot, American, see *Heliornis fulica*
- Fisk, E. J. Fall movement and probable migrant returns of Mockingbirds in south Florida, 62
- , Further notes on the color of Mockingbird eyes. 124
- Flicker, Yellow-shafted, see *Colaptes auratus*
- Flight, see locomotion
- Flocking, see behavior
- Florida, Bluebird breeding, 110-123
- Flycatcher, Crested, see *Myiarchus cineritus*
- , Least, see *Empidonax minimus*
- , Pied, see *Muscicapa hypoleuca*
- , Western, see *Empidonax difficilis*
- , Yellow-bellied, see *Empidonax flaviventris*
- FOOD AND FEEDING, CACHING
- Crow, Australian, 70(r)
- Nuthatch, Rock, 134(r)
- Owl, Barn, 225
- Woodpecker, Great Spotted, 70(r)
- , DIET
- Pigeon's milk, 73(r)
- , FOOD HABITS
- Duck, Tufted, 70(r)
- Egret, Cattle, 158-170
- , Snowy, bill-vibrating, 328(r)
- Falconiformes, three species, 328-29(r)
- Grackle, Great-tailed, 134(r)
- Jay, nestling Common, 320(r)
- , Piñon, 69(r)
- Kittiwake, 68(r)
- Kiwi, 328(r)
- Orioles, nectar-feeding, 134(r)
- Owl, Barn, 75(r)
- Swift, White-rumped, 241(r)
- Terns with multiple fish, 328(r)
- Wood warblers, 328(r)
- , FORAGING EFFICIENCY
- Egret, Cattle, 327(r)
- Parent birds with nestlings, 73(r)
- Footedness, see behavior
- Franz Josef Land, ornithology of —, 133(r)
- Fratercula arctica*, New England population changes, 267-313
- , sex and age determination, 238(r)
- Fregata magnificens*, distribution, 129(r)
- Frigatebird, *Magnificent*, see *Fregata magnificens*
- Fringilla coelebs*, energy balance, 73(r)
- Fulmarus glacialisoides*, recoveries, 127(r)
- Garrulus glandarius*, breeding biology and nestling food, 320(r)
- Geothlypis trichas*, winter area fidelity, survival, 221-224
- Goldfinch, Lesser, see *Spinus psaltria*
- Goose, Snow, see *Chen hyperborca*
- Grackle, Boat-tailed, see *Cassidix mexicanus*

- , Common, see *Quiscalus quiscula*
 Grosbeak, Evening, see *Hesperiphona vespertina*
 —, Rose-breasted, see *Pheucticus ludovicianus*
 Grouse, Blue, see *Dendragapus obscurus*
 —, Ruffed, see *Bonasa umbellus*
 Growth and development, see nesting and reproduction
 Gruson, E. S. Words for birds (rev.), 243
 Guarino, J. L. See Bray, O. E., et al.
 Guillemot, Black, see *Cephus grylle*
 Gull, Great Black-backed, see *Larus marinus*
 —, Herring, see *Larus argentatus*
 —, Red-billed, see *Larus novaehollandiae*
 —, Ring-billed, see *Larus delawarensis*
Gymnorhinus cyanocephalus, flocking and annual cycle, 69(r)
Halcyornis toliapicus, affinities from lower Eocene, 133(r)
Haliaeetus albicilla, eggshell thinning, 236(r)
 Hardy, J. W. Age and sex differences in the black-and-blue jays of middle America, 81-90
 Harrington, B. A. Aggression in winter resident and spring migrant White-throated Sparrows in Massachusetts. 314-15
 Hatching success, see nesting and reproduction
 Hawk, Sparrow, see *Falco sparverius*
 Hawks, see Falconiformes
 Hearing, see sensory organs
Heliornis fulica, biology in Mexico, 233(r)
Helmitheros vermivorus, winter returns in Jamaica, 221-224
 —, winter returns in Mexico— 228-29
 Heron, Great Blue, see *Ardea herodias*
Hesperiphona vespertina, age determination, 240(r)
 Hilditch, C. D. M., et al. Autumnal bird migration over Antigua, W. I. 171-179
Himantopus himantopus, deaths by hail, 67(r)
Hirundo rustica, nest materials, 319-20(r)
 HISTOLOGY of bird leucocytes, 132(r)
 Homing, see migration
 Honeyeater, Fuscous, see *Meliphaga fusca*
 —, White-naped, see *Mclithreptus tumatus*
 Hummingbirds, see Trochilidae
 HYBRIDS AND HYBRIDIZATION
 In the genus *Acanthis*, 13-21
 In the genus *Bucephala*, 326(r)
 In the genus *Lanius*, 134(r)
 In the genus *Myzantha*, 75(r)
Hydroprogne caspia, breeding success, 196-204
 —, comparison of laying date with Common Tern, 129(r)
 —, longevity, 127(r)
Hylocichla mustelina, winter returns in Mexico, 228-29
Hylophylax naevioides, behavior, 75-76(r)
Icteria virens, winter returns in Mexico, 228-29
Icterus, nectar-feeding by—, 134(r)
 —, winter identification in the north-east, 132(r)
 Incubation, see nesting and reproduction
 Individual distance, see territory
 INJURIES AND ACCIDENTS
 Budgerigars, 24
 Ruddy Ducks, 130(r)
Iridoprocne bicolor, banding worksheet, 230(r)
 —, individual distance, 321(r)
 Jamaica, North American Parulidae wintering in—, 221-224
 James, F. C., see Allen, R. T., and—
 Jay, Blue, see *Cyanocitta cristata*
 —, Bushy-crested, see *Cyanocorax melanocyanea*
 —, Common, see *Garrulus glandarius*
 —, Piñon, see *Gymnorhinus cyanocephalus*
 —, San Blas, see *Cyanocorax sanblasiana*
 —, Yucatan, see *Cyanocorax yucatanica*
 Johnson, N. K. Spring migration of the Western Flycatcher, with notes on seasonal changes in sex and age ratios. 205-220
Junco hyemalis, orientation in flight, 102-109
 Junco, Slate-colored, see *Junco hyemalis*
 Kaufman, D. W. Captive Barn Owls stockpile prey. 225.
 Kennedy, R. S. Notes on the migration of juvenile Ospreys from Maryland and Virginia. 180-186
Ketupa blakistoni, parental care, 233(r)
 Kilham, L. Colonial-type nesting in Yellow-shafted Flickers as related to staggering of nesting times. 317-18
 Kittiwake, see *Rissa*
 Kiwi, North Island Brown, see *Apteryx australis*
 Koch, T. Anatomy of the chicken and domestic birds (rev.), 331-32
Lanius collurio, hybrids with *L. phoenicuroides*, 134(r)
L. phoenicuroides, hybrids with *L. collurio*, 134(r)
Larus argentatus, cliff-nesting behavior, 322(r)

- , New England population changes, 267-313
- , orientation in flight, 102-109
- , predator of swallows, 327-28(r)
- L. delawarensis*, capture method, 67(r)
- , relocates nest, 225-227
- L. marinus*, New England population changes, 267-313
- L. novahollandiae*, band loss, 67(r)
- Laskey, A. R. A longevity and round trip record of Purple Finches. 227
- Leucophoyx thula*, bill-vibrating to attract prey, 328(r)
- Limnothlypis swainsonii*, winter returns in Jamaica, 221-224
- Lockyer, N. F. et al. A device for removing birds from nest boxes. 56-57
- LOCOMOTION**
- Flight of blindfolded birds, 102-109
- Flight speed of autumnal migrants, 171-179
- Flight of swifts at night and in migration, 319(r)
- Longevity, see age
- Magpie, Black-billed, see *Pica pica*
- Magpie, Yellow-billed, see *Pica nuttalli*
- MANAGEMENT AND ECONOMIC ORNITHOLOGY**
- Aircraft birdstrikes, 235(r)
- Blue Grouse predation, 322(r)
- Seabirds and management, 267-313
- Predation induced by human nest visits, 319(r)
- Raptor and corvid deterrence, 71(r)
- Martin, D. J. Burrow digging by Barn Owls. 59-60
- Martin, S. G. Longevity surprise: the Bobolink. 57-58
- Massachusetts, tern populations, 27-55
- Measurements, see morphology
- Megapodiidae, food holding with feet, 96
- Meliphaga fusca*, longevity, 127(r)
- Melithreptus henatus*, longevity, 127(r)
- Melospiza melodia*, orientation in flight, 102-109
- Meyerriecks, A. J. Man and birds: evolution and behavior (rev.), 243-44
- MIGRATION, MECHANICS**
- Pigeons, 67(r)
- , **NOMADISM**
- Jay, Piñon, 69(r)
- , **PHYSIOLOGY**
- Blood sugar change, 237(r)
- Body fat chemical change, 237(r)
- , **REGIONAL**
- Antigua, W. I. in autumn, 171-179
- Florida in autumn, tower kills, 232(r), 258-266
- N. J., hawks in autumn, 231(r)
- Ontario, spring diurnal, 232(r)
- Penna., hawks in autumn, 231(r)
- South China, 232(r)
- Sweden, nocturnal in autumn, 231(r)
- , diurnal in autumn, 231-32(r)
- , **SPECIES**
- Anatidae, 128(r)
- Bobolink, 57-58
- Egret, Cattle, 158-70
- Flycatcher, Western, 205-220
- Grackle, Common, 1-12
- Hawks, 231(r)
- Mockingbird, 62
- Osprey, juveniles, 180-196
- Pelican, White, 66(r)
- Sparrowhawk, European, 67(r)
- Swifts, 319(r)
- Warbler, Cape May, 258-66
- , Black-throated Blue, 258-66
- , Blackpoll, 258-66
- Mimus polyglottos*, eye color, 124
- , fall movement in Florida, 62
- Mix, H. See Williams, T. C., and—
- Mockingbird, see *Mimus polyglottos*
- Mniotilta varia*, winter returns in Jamaica, 221-224
- , winter returns in Mexico, 228-229
- Molothrus ater*, capture method, 66(r)
- , pre-roost gatherings, 315-16
- , populations and migrations, 68(r)
- Molt, see plumages and—
- Moreau, R. E. The Palaearctic-African bird migration systems (rev.), 136-37.
- Morphology and measurements, Redpoll, 13-21
- Mortality, see age, life expectancy
- Murre, Common, see *Uria aalge*
- Murrelet, Marbled, see *Brachyramphus marmoratum*
- Muscicapa hypoleuca*, breeding ecology, 235(r)
- Myiarchus crinitus*, winter returns in Mexico, 228-229.
- Myzantha*, hybridization, 75(r)
- Myzantha melanocephala*, nest loss from hail, 67(r)
- Navigation, see migration; see also orientation
- Neositta chrysoptera*, tool use, 129(r)
- NESTING AND REPRODUCTION, BREEDING BIOLOGY**
- Bluebird, Eastern, 110-123
- Bulbul, 71(r)
- Hawk, Sparrow, 69(r)
- Heron, Great Blue, 320-21(r)
- Jay, Common, 320(r)
- Kittiwake, 68(r)
- Shoveller, 233(r)
- Swallow, Bank, 128(r)
- Tern, Caspian, 196-204
- Weather effects on—, 61-62, 67(r), 110-123
- , **CLUTCH SIZE**
- Bluebird, Eastern, 110-123
- Seasonal variations, Caspian Tern, 196-204

- , GROWTH AND DEVELOPMENT
 Effect of gamma radiation on—, 73 (r)
 Kittiwake, 68(r)
 Oldsquaws, 61-62
- , HABITS
 Bluebird, Eastern, 110-123
 Finfoot, American, 233(r)
 Flycatcher, Pied, 235(r)
 Hole-nesting birds, 235(r)
 Oldsquaw, 61-62
 Owl, Barn, 59-60
 —, Short-eared, 59
- , INCUBATION
 Bluebird, Eastern, 110-123
 Effects of weather, 61-62, 67(r), 110-123
 Oldsquaw, 61-62
 Tern, Caspian, 196-204
 In the genus *Sylvia*, 320(r)
- , MULTIPLE BROODS
 Bluebird, Eastern, 110-123
 Grosbeak, Rose-breasted, 321(r)
- , NESTS
 Materials, Barn Swallow, 319-320(r)
 Nest temperature, 237(r)
 Relocation, Ring-billed Gull, 225-27
- , PARENTAL CARE, Fishing Owl, 233(r)
- , SEASONS
 Bluebirds in Florida, 110-123
 Oldsquaw, 61-62
 Tern, Arctic, 27-55
 —, Caspian, 129(r), 196-204
 —, Common, 129(r), 27-55
 —, Least, 27-55
 —, Roseate, 27-55
- , SUCCESS
 Artificial and natural sites, 110-123
 Bluebird, Eastern, 110-123
 Grackle, Boat-tailed, 68(r)
 Tern, Caspian, 196-204
 New England, seabird population changes, 267-313
 Nisbet, I. C. T. Terns in Massachusetts: present numbers and historical changes, 27-55
 —, also see Hilditch, C. D. M., and—
 Nuthatch, Rock, see *Sitta tephronota*
Oceanites oceanicus, smell and foraging, 127(r)
Oceanodroma leucorhoa, New England populations, 267-313
 —, smell and foraging, 127(r)
 Okinawa, birds of—, 326(r)
 Oldsquaw, see *Clangula hyemalis*
Oporornis agilis, migration, 261
O. formosus, winter returns in Mexico, 228-29
O. philadelphia, migration, 261
O. tolmiei, winter returns in Mexico, 228-29
- ORIENTATION
 Gull, Herring, 102-109
 Junco, Slate-colored, 102-109
 Pigeon, Domestic, 102-109
 Sparrow, House, 102-109
 —, White-throated, 102-109
 Orioles, see *Icterus*
 Osprey, see *Pandion haliaetus*
Otus asio, displacing Pileated Woodpecker, 316
 —, thin shells of—, 72(r), 323(r)
 Ovenbird, see *Seiurus aurocapillus*
 Owl, Barn, see *Tyto alba*
 —, Blakiston's Fish, see *Ketupa blakistoni*
 —, Burrowing, see *Speotyto cunicularia*
 —, Little, see *Athene noctua*
 —, Saw-whet, see *Aegolius acadicus*
 —, Screech, see *Otus asio*
 Owls, extraocular muscles, 74(r)
 —, neural hearing centers, 74(r)
 —, stockpiling prey, 225
Oxyura jamaicensis, colliding with wires, 130(r)
Pandion haliaetus, migration, 180-186
- PARASITES AND DISEASE
 Chiggers, host records, 236(r)
Freyanella, feather mite genus, 323(r)
 of Ruffed Grouse, 72(r)
 Mites in birds' nests, 72(r)
 Mites in House Sparrow nests, 130-31(r)
 Nasal mites, key, 236(r)
 Nutrition of feather mites, 236(r)
- PARASITISM BY BIRDS
 New Zealand Cuckoo, 129(r)
 Parrot, Thick-billed, see *Rhynchopsitta pachyrhyncha*
 Parrots, see Psittacidae
 Parulidae, wintering and survival in Jamaica, 221-24
Passer domesticus, orientation, 102-109
 —, nest mites, 130-31(r)
Passerina amoena, banding worksheet, 230(r)
P. ciris, winter returns in Mexico, 228-29
 Patterson, B. N. More on one-night mileage of migrants, 227-28
Pelecanus erythrorhynchus, banding and recoveries, 66(r)
 Pelican, White, see *Pelecanus erythrorhynchus*
 Petrel, Leach's, see *Oceanodroma leucorhoa*
 —, Silver-grey, see *Fulmarus glacialisoides*
 —, Wilson's, see *Oceanites oceanicus*
Phalacrocorax auritus, air-sacs, 236(r)
 —, New England populations, 267-313
 —, Tool use, 130(r)
Pheucticus ludovicianus, brood overlap, 321(r)
 Physiology, see Anatomy and—
Pica pica, capture method, 66(r)
P. nuttalli, time budgets, 321(r)
Picathartes, relationships of—, 327(r)

- Pigeon, Domestic, see *Columba livia*
Pionites melanocephala, plumage care, 322(r)
- Piranga rubra*, banding worksheet, 230(r)
- PLUMAGES AND MOLT**
Bobolink, 57-58
Flycatcher, Western, 205-220
Jay, Beechey, 81-90
—, Bushy-crested, 81-90
—, San Blas, 81-90
—, Yucatan, 81-90
Kiwi, 325(r)
Oldsquaw, 61-62
Orioles, 132(r)
Vireo, White-eyed, 63-65
- POLYMORPHISM**
Shearwater, Wedge-tailed, 128(r)
Sparrow, White-throated, 314-15
- POPULATIONS AND SOCIAL BIOLOGY**
Blackbirds, 68(r)
Estimating, 28, 66(r), 68(r)
Jay, Piñon, 69(r)
Seabirds in New England, 267-313
Shearwaters of Shark Bay, 128(r)
Terns in Mass., 27-55
- , **PRODUCTIVITY**
Bluebird, Eastern, 110-123
Latitudinal variation, 71(r)
Swallow, Rough-winged, 71(r)
- , **RECRUITMENT**
Swallow, Rough-winged, 71(r)
- Post, W. Some encounters between birds and pelecypods., 65
- Postures, see behavior
- PREDATION**
of Bank Swallows by Sparrow Hawks, 327-28(r)
of Blue Grouse, 322(r)
of Bluebird nests, 110-123
Nest predation induced by humans, 319(r)
by New Zealand Cuckoo, 129(r)
Predator-prey evolution, 319(r)
of Shearwaters, 128(r)
of Snow Geese by fox, 128(r)
- Psittacidae, extinct and vanishing species, 234(r)
- , food-holding with feet, 96
- Puffin, Common, see *Fratercula arctica*
Puffinus gravis, smell and foraging, 127(r)
P. pacificus, breeding populations, 128(r)
- Pycnonotidae, biology, 71(r)
- Quail, Bobwhite, see *Colinus virginianus*
—, Japanese, see *Coturnix japonica*
- Quiscalus mexicanus*, see *Cassidix mexicanus*
Q. quiscula, migration and distribution, 1-12
—, roosting associates and behavior, 315-16
- Radar, see migration; also see research methods
- Rallidae, food-holding with feet, 96
- Razorbill, see *Alca torda*
- Recoveries, see banding
- Redpoll, Common, see *Acanthis flammæa*
—, Hoary, see *Acanthis hornemanni*
- Redstart, American, see *Setophaga ruticilla*
- Regulus regulus*, huddling, 238(r)
- RESEARCH METHODS**
Computation of pesticide residues, 323(r)
Recording data from radar, 124-25
Rhynchopsitta pachyrhyncha, sex determination, 325-26(r)
- Ricklefs, R. E. Tattooing nestlings for individual recognition, 63
- Riparia riparia*, nesting in sawdust, 128(r)
—, prey of Sparrow Hawk, 327-28(r)
- Rissa tridactyla*, breeding biology in Newfoundland, 68(r)
—, cliff-nesting behavior, 322(r)
Roosting, see behavior
- Royall, W. C. See Bray, O. E., and—
Rynchops nigra, human-caused deaths, 323(r)
—, New England populations, 267-313
Ryukya Island, birds of—, 326(r)
- Salvadori, A., and K. A. Youngstrom. A system survey of a bird observatory: Part I. A recording form for banding data. 249-257
- Scaup, Greater, see *Aythya marila*
- Schaeffer, F. S. Tactile bristles of Saw-whet Owls are sensitive to touch. 125
- Seabirds, population changes in New England, 267-313
—, zoogeography, 132(r)
- Seiurus aurocapillus*, aging criteria, 239-40(r)
—, winter returns in Jamaica, 221-24
—, winter returns in Mexico, 228-29
S. noveboracensis, winter returns in Jamaica, 221-24
- SENSORY ORGANS**
Hearing, neural centers, 74(r)
Smell, in procellarids, 127(r)
Smell and touch in Kiwis, 328(r)
Touch, Saw-whet Owl, 125
Setophaga ruticilla, winter returns in Jamaica, 221-24
- SEX AND AGE RATIOS**
of Black-throated Blue and Cape May warblers, 258-66
of Sparrow Hawks, 69(r)
of Western Flycatchers, 205-220
- SEX CRITERIA AND DIMORPHISM**
Flycatcher, Western, 205-220
Jay, San Blas, 83-85
—, Yucatan, 85-87

- Parrot, Thick-billed, 325-26(r)
 Puffin, Common, 238(r)
 Redpoll, Common, 13-21
 Shearwater, Greater, see *Puffinus gravis*
 —, Wedge-tailed, see *Puffinus pacificus*
 Shearwaters, see *Puffinus*
 Shorebirds, autumnal migration, 171-79
Sialia sialis, breeding biology, 110-123
 Sickness, see injuries
 Siskin, Pine, see *Spinus pinus*
 Site tenacity, see territory
Sitta tephronota, food storing, 134(r)
 Sittella, Orange-winged, see *Neositta chrysoptera*
 Skimmer, Black, see *Rynchops nigra*
 Smith, R. W. See Diamond, A. W., and—
 Snipe, Common, see *Capella gallinago*
 Social biology, see populations and—
 Soikkeli, M. Breeding success of the Caspian Tern in Finland, 196-204
Somateria molissima, New England population changes, 267-313
 Song, see vocalizations
 Southern, W. E. See Cuthbert, F. J., and —
 Sparrow, House, see *Passer domesticus*
 —, Song, see *Melospiza melodia*
 —, White-crowned, see *Zonotrichia leucophrys*
 —, White-throated, see *Zonotrichia albicollis*
Speotyto cunicularia, nest locations, 59(r)
 —, sleep in—, 234(r)
Spinus pinus, movements, 227-228
S. psaltria, banding worksheet, 230(r)
 Starling, see *Sturnus vulgaris*
Stelgidopteryx ruficollis, breeding productivity, 71(r)
Sterna albifrons, Massachusetts populations, 27-55
 —, New England population changes, 267-313
S. bengalensis, display with *S. sandvicensis*, 326(r)
S. dougallii, New England populations, 27-55, 267-313
S. hirundo, clamped by clam, 65
 —, clutch initiation, 129(r)
 —, human-caused deaths, 323(r)
 —, New England populations, 27-55, 267-313
 —, recoveries of — banded in Sask., 127(r)
S. paradisea, New England populations, 27-55, 267-313
S. sandvicensis, display with *S. bengalensis*, 326(r)
S. sp., carrying multiple fish, 328(r)
Sturnus vulgaris, populations and migration, 68(r)
 —, pre-roost gatherings, 315-16
 Stewart, P. A. Basis for pre-roost gatherings of Starlings and Brown-headed Cowbirds, 315-16
 Stone, C. P. See Lockyer, N. F., and—
 Strigiformes, food-holding with feet, 96
 Swallow, Bank, see *Riparia riparia*
 —, Barn, see *Hirundo rustica*
 —, Rough-winged, see *Stelgidopteryx ruficollis*
 —, Tree, see *Iridoprocne bicolor*
 —, Violet-green, see *Tachycineta thalassina*
 Swifts, see *Apus apus*
Sylvia sp., incubation behavior and patches, 320(r)
 SYSTEMATICS AND TAXONOMY
 Dunlin, 241(r)
Halecyornis tolapicus, 133
 Owl, Little, 326-27(r)
Picathartes, relationships, 327
 Use of rare characters in—, 327(r)
Tachycineta thalassina, Banding worksheet, 230(r)
 Tanager, Summer, see *Piranga rubra*
 Tattooing, see banding
 Taylor, W. K. Black-throated Blue and Cape May warblers killed in central Florida, 258-266
 Teal, J. M. See Williams, T. C., and—
 Tern, Arctic, see *Sterna paradisaea*
 —, Caspian, see *Hydroprogne caspia*
 —, Common, see *Sterna hirundo*
 —, Least, see *Sterna albifrons*
 —, Roseate, see *Sterna dougallii*
 —, Royal, see *Thalasseus maximus*
 TERRITORY AND AREA
 FIDELITY
 Blackbird, Red-winged, seasonal changes, 70(r)
 Bobolink, 57
 Grackle, Boat-tailed, 68(r)
 Individual distance, Tree Swallow, 321(r)
 Nest spacing, Yellow-shafted Flicker, 317-18
 North American Parulidae wintering in Jamaica, 221-224
 North American birds wintering in Mexico, 228-229
 Territorial songs of birds, 134(r)
Tetraogallus, evolution of the genus, 241(r)
Thalasseus maximus, recoveries of — banded in Virginia, 240-241(r)
 Thermoregulation, see behavior
 Thompson, C. F. Postjuvinal molt in the White-eyed Vireo, 63-65
 Thrush, Wood, see *Hylocichla mustelina*
 Thrushes, see Turdidae
 Time budgets, see behavior
 Trapping, see banding techniques
 Trochilidae, behavior and ecology, 322(r)
 Trogonidae, food-holding with feet, 96

- Tuck, L. M. The snipes: a study of the genus *Capella* (rev.), 244
- Turdidae, comparative caryotypes, 132(r)
- Tyto alba*, banding report, Australia, 231(r)
- , behavior, 59
- , burrow-digging, 59-60
- , prey, 75(r)
- , stockpiling prey, 225
- Unipedal postures, see behavior
- Uria aalge*, New England population changes, 267-313
- Vartapetyan, B. B., Molecular oxygen and water in cell metabolism (rev.), 244-45
- Vermivora peregrina*, wintering in Jamaica, 221
- V. ruficapilla*, migration, 261
- Vireo griseus*, postjuvinal molt, 63-65
- V. solitarius*, winter returns in Mexico, 228-229
- Vireo, Solitary, see *Vireo solitarius*
- , White-eyed, see *Vireo griseus*
- VISION
- Alteration of avian eye growth, 131(r)
- Avian retina, ultrastructure, 238(r)
- Extraocular muscles of birds, 74(r)
- Lens damage in sharks by UV light, 324-25(r)
- Pecten oculi in birds, 132(r), 324(r)
- Photopic spectral sensitivity, 131(r)
- Retinal damage in pigeons, 131(r)
- Subcortical vision center in pigeons, 131(r)
- VOCALIZATIONS AND SOUND
- Anatidae, sound production, 239(r)
- Blackbird, Red-winged, nestlings, 70(r)
- Musical patterns, evolution in birds, 329(r)
- Grackle, Boat-tailed, 68(r)
- Passerines, syrinx, 239(r)
- Territorial and courtship songs, 134(r)
- Sound and orientation, 102-109
- Warbler, Black-and-white, see *Mniotilta varia*
- , Black-throated Blue, see *Dendroica caerulescens*
- , Cape May, see *Dendroica tigrina*
- , Connecticut, see *Oporornis agilis*
- , Hooded, see *Wilsonia citrina*
- , Kentucky, see *Oporornis formosus*
- , Magnolia, see *Dendroica magnolia*
- , MacGillivray's, see *Oporornis tolmiei*
- , Mourning, see *Oporornis philadelphia*
- , Nashville, see *Vermivora ruficapilla*
- , Parula, see *Parula americana*
- , Prairie, see *Dendroica discolor*
- , Swainson's, see *Limnolophus swainsonii*
- Warblers, see Parulidae
- Waterthrush, Northern, see *Seiurus noveboracensis*
- Weather, effects on breeding, see nesting and reproduction
- , effects on bird mortality, see age
- Weights, migrant warblers, 258-266
- West Virginia, Birds of—, 326(r)
- White, S. C., and G. E. Woolfenden. Breeding of the Eastern Bluebird in central Florida, 110-123
- Williams, T. C., and J. M. Teal. The flight of blindfolded birds, 102-109
- , and H. Mix. An inexpensive apparatus for recording data from radar Plan Position Indicator displays, 124-125
- , see Hilditch, C. D. M., and —
- Willis, E. O. The behavior of Spotted Antbirds (rev.), 75-76
- Wilsonia citrina*, winter studies in Mexico, 228-229
- , *pusilla*, migration, 261
- Wood, D. L., see Wood, D. S., and —
- Wood, D. S., and D. L. Wood. Quantitative iris color change with age in Downy Woodpeckers, 100-101
- Wood, M. Birds of Pennsylvania (rev.), 245
- Wood warblers, food of—, 328(r)
- Woodpecker, Downy, see *Dendrocopos pubescens*
- , Great Spotted, see *Dendrocopos major*
- , Pileated, see *Dryocopus pileatus*
- Woolfenden, G. E., see White, S. C., and —
- Youngstrom, K. A., see Salvadori, A., and —
- Zonotrichia albicollis*, aggression, 314-315
- , orientation in flight, 102-109
- Z. leucophrys*, in Ohio, 74(r)
- ZOOGEOGRAPHY AND DISTRIBUTION, REGIONAL
- Franz Josef Land, 133(r)
- Okinawa and Ryukya Islands, 326(r)
- Southern Appalachian, 74(r)
- West Virginia, 326(r)
- , SPECIES
- Accipiter nisus* in winter, 67(r)
- Bowerbirds, 327(r)
- Bunting, Reed, 240(r)
- Duck, Pintail, 240(r)
- Egret, Cattle, 158-170
- Flycatcher, Western, 205-220
- Frigatebird, Magnificent, 129(r)
- Grackle, Common, 1-12
- Murrelet, Marbled, 326(r)
- Seabirds, 132(r)
- Sparrow, White-crowned, 74(r)