



grzimek's

Student Animal Life Resource

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Birds

volume 1



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Student Animal Life Resource



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Birds

volume 1

Tinamous to Falcons

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Reader's Guide

Grzimek's Student Animal Life Resource: Birds offers readers comprehensive and easy-to-use information on Earth's birds. Entries are arranged by taxonomy, the science through which living things are classified into related groups. Order entries provide an overview of a group of families, and family entries provide an overview of a particular family. Each entry includes sections on physical characteristics; geographic range; habitat; diet; behavior and reproduction; animals and people; and conservation status. Family entries are followed by one or more species accounts with the same information as well as a range map and photo or illustration for each species. Entries conclude with a list of books, periodicals, and Web sites that may be used for further research.

ADDITIONAL FEATURES

Each volume of *Grzimek's Student Animal Life Resource: Birds* includes a pronunciation guide for scientific names, a glossary, an overview of birds, a list of species in the set by biome, a list of species by geographic location, and an index. The set has 640 full-color maps, photos, and illustrations to enliven the text, and sidebars provide additional facts and related information.

NOTES

The classification of animals into orders, families, and even species is not a completed exercise. As researchers learn more about animals and their relationships, classifications may change. In some cases, researchers do not agree on how or whether to make a change. For this reason, the heading "Num-

ber of species” in the introduction of an entry may read “About 36 species” or “34 to 37 species.” It is not a question of whether some animals exist or not, but a question of how they are classified. Some researchers are more likely to “lump” animals into the same species classification, while others may “split” animals into separate species.

Grzimek’s Student Animal Life Resource: Birds has standardized information in the Conservation Status section. The IUCN Red List provides the world’s most comprehensive inventory of the global conservation status of plants and animals. Using a set of criteria to evaluate extinction risk, the IUCN recognizes the following categories: Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Conservation Dependent, Near Threatened, Least Concern, and Data Deficient. These terms are defined where they are used in the text, but for a complete explanation of each category, visit the IUCN web page at <http://www.iucn.org/themes/ssc/redlists/RLcats2001booklet.html>.

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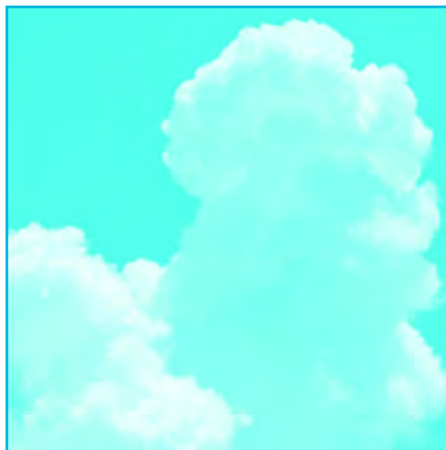
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COMMENTS AND SUGGESTIONS

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Pronunciation Guide for Scientific Names



Acanthisitta chloris uh-kan-thuh-SIT-tuh KLOR-is
Acanthisittidae uh-kan-thuh-SIT-tuh-dee
Acanthiza chrysorrhoa uh-KAN-thih-zuh KRIH-soh-ROH-uh
Acanthizidae uh-kan-THIZ-uh-dee
Accipitridae ak-sip-IT-ruh-dee
Aceros cassidix AH-ser-uhs KAS-sid-iks
Acridotheres tristis AK-rid-uh-THER-eez TRIS-tis
Actenoides concretus ak-TEN-oi-deez con-CREE-tuhs
Actinodura sodangorum AK-tin-uh-DYOOR-uh soh-dan-GOH-rum
Actophilornis africanus ak-tuh-FIL-or-nis AF-rih-kan-uhs
Aechmophorus occidentalis ek-MOH-for-uhs OK-sih-DEN-tal-is
Aegithalidae ee-jih-THAL-uh-dee
Aegithina tiphia ee-JIH-thin-uh TIF-ee-uh
Aegotheles insignis ee-GO-thel-eez IN-sig-nis
Aegothelidae ee-go-THEL-uh-dee
Agelaioides badius ah-jeh-LAY-oid-eez BAD-ee-uhs
Agelaius phoeniceus ah-jeh-LAY-ee-uhs fee-nih-SEE-uhs
Aix sponsa AKS SPON-suh
Ajaia ajaja ah-JAH-ee-uh AH-jah-juh
Alaemon alaudipes al-EE-mon ah-LAUD-ih-pee-z
Alaudidae ah-LAUD-uh-dee
Alcedinidae al-sed-IN-uh-dee
Alcidae AL-suh-dee
Amytornis striatus am-IT-or-nis stry-AH-tuhs
Anas platyrhynchos AH-nuhs PLA-tee-RIN-koz

Anatidae ah-NA-tuh-dee
Andigena hypoglaucha an-DIH-jin-uh HI-poh-GLO-kuh
Anhima cornuta AN-him-uh KOR-nyoo-tuh
Anhimidae an-HIM-uh-dee
Anhinga anhinga AN-hin-guh AN-hin-guh
Anseriformes an-ser-uh-FORM-eez
Anthus spragueii AN-thuhs SPRAG-ee-eye
Aphelocoma californica uh-fel-uh-KOH-muh kal-uh-FORN-
 ik-uh
Apodidae a-POD-uh-dee
Apodiformes a-pod-uh-FORM-eez
Aptenodytes forsteri ap-ten-uh-DIE-teez FOS-ter-eye
Apterygidae ap-ter-IJ-uh-dee
Apteryx australis AP-ter-iks au-STRA-lis
Ara macao AR-uh MUH-kow
Aramidae ar-UH-muh-dee
Aramus guarauna AR-uh-muhs GWAR-aw-nuh
Ardea herodias AR-dee-uh hir-OH-dee-uhs
Ardeidae ar-DEE-uh-dee
Arenaria interpres ar-en-AIR-ee-uh IN-ter-preez
Artamidae ar-TAM-uh-dee
Artamus cyanopterus AR-tam-uhs SIGH-an-OP-ter-uhs
Astrapia mayeri as-truh-PEE-uh MAY-er-eye
Atrichornis rufescens a-TRIK-or-nis ROO-fehs-sens
Atrichornithidae a-trik-or-NITH-uh-dee
Attagis gayi AT-uh-jis GAY-eye
Auriparus flaviceps aw-RIP-ar-uhs FLAV-uh-seps
Balaeniceps rex bal-EEN-uh-seps REX
Balaenicipitidae BAL-een-uh-sip-IH-tuh-dee
Balearica regulorum BAL-ih-AR-ik-uh reg-YOO-lor-um
Batis capensis BAT-is KAP-en-sis
Bombycilla cedrorum bom-bih-SILL-uh SEED-roh-rum
Bombycillidae bom-bih-SILL-uh-dee
Botaurus stellaris BOH-tor-uhs STEL-lar-is
Branta canadensis BRAN-tuh kan-uh-DEN-sis
Bubo sumatranus BYOO-boh SOO-mah-TRAN-uhs
Bucconidae buck-ON-uh-dee
Bucerotidae byoo-ser-UH-tuh-dee
Bucorvus leadbeateri BYOO-kor-vuhs LED-bet-er-eye

Buphagus erythrorhynchus BYOO-fag-uhs eh-RITH-roh-RIN-kuhs
Burhinidae bur-HIN-uh-dee
Callaeas cinerea cal-LEE-uhs sin-EAR-ee-uh
Callaeidae cal-LEE-uh-dee
Calypte anna kuh-LIP-tee AN-nuh
Campephagidae kam-pee-FAJ-uh-dee
Campephilus principalis KAM-pee-FIL-uhs PRIN-sih-PAL-is
Campylorhamphus trochilrostris KAM-pie-luh-RAM-fuhs
 TRO-kil-ih-ROS-tris
Campylorhynchus brunneicapillus KAM-pie-luh-RIN-kuhs
 BROO-nee-kap-ILL-uhs
Capitonidae kap-ih-TON-uh-dee
Caprimulgidae kap-rih-MUL-juh-dee
Caprimulgiformes kal-rih-mul-juh-FORM-eez
Caprimulgus indicus KAP-rih-MUL-juhs IN-dih-kuhs
Caprimulgus vociferus KAP-rih-MUL-juhs voh-SIF-er-uhs
Carduelis tristis KAR-doo-lis TRIS-tis
Cariama cristata KAR-ee-ah-muh KRIS-tah-tuh
Cariamidae kar-ee-AH-muh-dee
Casuariidae kas-oo-ar-EYE-uh-dee
Casuaris casuaris kas-oo-AR-ee-uhs kas-oo-AR-ee-uhs
Cathartidae kath-ART-uh-dee
Cephalopterus ornatus SEFF-uhl-OP-ter-uhs AWR-nah-tuhs
Cercomacra cinerascens SIR-koh-MAK-ruh si-NEAR-ass-enz
Certhia americana SIR-thee-uh uh-mer-uh-KAN-uh
Certhiidae sirth-EYE-uh-dee
Chaetura pelagica KEE-tur-uh peh-LAJ-ik-uh
Chalcoparia singalensis kal-kuh-PAIR-ee-uh sin-GAHL-en-sis
Chamaea fasciata kam-EE-uh fah-she-AH-tuh
Chamaepetes unicolor kam-ee-PEET-eez YOO-nih-KUH-luhr
Charadriidae kar-ad-RYE-uh-dee
Charadriiformes kar-ad-rye-uh-FORM-eez
Charadrius vociferus kar-ad-REE-uhs voh-SIF-er-uhs
Chionidae ky-ON-uh-dee
Chionis minor KY-on-is MY-ner
Chiroxiphia linearis ky-roh-ZIF-ee-uh lin-EE-air-is
Chlamydera maculata klam-EE-der-uh mak-yoo-LAH-tuh
Chlidonias niger klih-DON-ee-uhs NY-jer
Cicinnurus regius sih-SIN-yoor-uhs RAY-jee-uhs

Ciconia ciconia SIK-uh-nee-uh SIK-uh-nee-uh
Ciconiidae sik-uh-NYE-uh-dee
Ciconiiformes sik-uh-nee-uh-FORM-eez
Cinclidae SIN-kluh-dee
Cinclosoma punctatum sin-cluh-SOH-muh PUNK-tah-tum
Cinclus cinclus SIN-kluhs SIN-kluhs
Cinclus mexicanus SIN-kluhs MEK-sih-KAN-uhs
Cinnyris asiaticus SIN-ny-ris AY-zhi-AT-ik-uhs
Cissa chinensis SIS-suh CHIN-en-sis
Cisticola juncidis sis-tuh-KOH-luh JUNK-id-is
Climacteridae kly-mak-TER-uh-dee
Climacteris rufa kly-MAK-ter-is ROO-fuh
Colibri coruscans KOH-lee-bree KOR-us-kans
Coliidae kol-EYE-uh-dee
Coliiformes kol-eye-uh-FORM-eez
Colinus virginianus KOL-eye-nuhs ver-JIN-ee-an-nuhs
Colius striatus KOL-ee-uhs stry-AH-tuhs
Columba livia KUH-lum-buh LIV-ee-uh
Columbidae kuh-LUM-buh-dee
Columbiformes kuh-lum-buh-FORM-eez
Coracias garrulus kor-UH-see-uhs GAR-oo-luhs
Coraciidae kor-uh-SIGH-uh-dee
Coraciiformes kor-uh-sigh-uh-FORM-eez
Coracina typica kor-uh-SEE-nuh TIP-ik-uh
Corvidae KOR-vuh-dee
Corvus corax KOR-vuhs KOR-aks
Corythaeola cristata kor-ih-thee-OH-luh KRIS-tah-tuh
Corythaixoides concolor kor-ih-THAKS-oi-deez CON-kuh-luhr
Cotinga cayana KOH-ting-guh KAY-ah-nuh
Cotingidae koh-TING-guh-dee
Cracidae KRA-suh-dee
Cracticidae krak-TIK-uh-dee
Cracticus torquatus KRAK-tik-uhs TOR-kwah-tuhs
Crax globulosa KRAKS glob-yoo-LOH-suh
Crex crex CREKS CREKS
Cuculidae kyoo-KYOO-luh-dee
Cuculiformes kyoo-kyoo-luh-FORM-eez
Cuculus canorus KYOO-kyoo-luhs KAN-or-uhs
Cyanocitta cristata SIGH-an-uh-SIT-tuh KRIS-tah-tuh
Cyclarhis gujanensis SIGH-klar-is GOO-jan-en-sis

Cygnus olor SIG-nuhs OH-lor
Cymbirhynchus macrorhynchus SIM-bih-RIN-kuhs ma-crow-RIN-kuhs
Cypsiurus parvus sip-SIH-yoor-uhs PAR-vuhs
Dacelo novaeguineae DAY-sel-oh NOH-vee-GIN-ee-ee
Dendrocolaptidae den-droh-koh-LAP-tuh-dee
Dendroica kirtlandii DEN-droy-kuh KIRT-land-ee-eye
Dendropicos goertae den-droh-PEE-kuhs GER-tee
Dicaeidae die-SEE-uh-dee
Dicaeum ignipectus DIE-see-um IG-nih-PEK-tuhs
Dicruridae die-KRU-ruh-dee
Dicrurus ludwigii DIE-kru-ruhs LOOT-vig-ee-eye
Dicrurus paradiseus DIE-kru-ruhs par-uh-DIE-see-uhs
Diomedea cauta eremite DIE-uh-MED-ee-uh CAW-tuh ER-ih-mite
Diomedea immutabilis DIE-uh-MED-ee-uh im-myoo-TUH-bil-is
Diomedeidae die-uh-med-EYE-dee
Donacobius atricapillus don-uh-KOH-bee-uhs ay-trih-kap-ILL-uhs
Drepanididae dre-pan-ID-uh-dee
Drepanorhynchus reichenowi DRE-pan-uh-RIN-kuhs RYE-keh-now-eye
Dromadidae droh-MAD-uh-dee
Dromaiidae droh-MAY-uh-dee
Dromaius novaehollandiae DROH-may-uhs NO-vee-hol-LAND-ee-ee
Dromas ardeola DROH-muhs ar-dee-OH-luh
Drymodes brunneopygia dry-MOH-deez BROO-nee-oh-PIJ-ee-uh
Dulidae DYOO-luh-dee
Dulus dominicus DYOO-luhs duh-MIN-ih-kuhs
Dumetella carolinensis dum-uh-TELL-uh kar-uh-LINE-en-sis
Eclectus roratus EK-lek-tuhs ROH-rat-uhs
Egretta ibis EE-gret-uh EYE-bis
Emberizidae em-ber-IZ-uh-dee
Epthianuridae ep-thy-an-YOOR-uh-dee
Epthianura tricolor ep-thy-an-YOOR-uh TRY-kuh-luhr
Eremophila alpestris ER-em-uh-FIL-uh al-PES-tris
Esacus magirostris EH-sak-uhs MAG-nuh-ROS-tris

Estrilda astrild ES-tril-duh AS-trild
Estrildidae es-TRIL-duh-dee
Eudyptes chrysolophus YOO-dip-teez kreh-soh-LOH-fuhs
Eupetidae yoo-PET-uh-dee
Euplectes orix YOO-plek-teez OR-iks
Eupodotis caerulescens yoo-pod-OH-tis see-ROO-less-sens
Eurylaimidae yoo-rih-lay-IM-uh-dee
Eurypyga helias yoo-RIH-pij-uh HEE-lee-uhs
Eurypygidae yoo-rih-PIJ-uh-dee
Eurystomus orientalis yoo-rih-STOH-muhs or-ih-EN-tal-is
Falco peregrinus FAL-koh PEHR-eh-GRIN-uhs
Falco rusticolis FAL-koh rus-TIH-kol-is
Falconidae fal-KON-uh-dee
Falconiformes fal-kon-uh-FORM-eez
Ficedula basilaria fih-SEH-duh-luh bas-ill-AN-ik-uh
Formicariidae for-mih-kar-EYE-uh-dee
Fratercula arctica frah-TER-kuh-luh ARK-tik-uh
Fregata magnificens FREH-gah-tuh mag-NIH-fih-sens
Fregatidae freh-GAH-tuh-dee
Fringilla coelebs frin-JILL-uh SEE-lebz
Fringillidae frin-JILL-uh-dee
Fulmarus glacialis FULL-mar-uhs glay-SHE-al-is
Furnariidae fur-nar-EYE-uh-dee
Furnarius rufus fur-NAR-ee-uhs ROO-fuhs
Galbula pastazae GAL-bull-uh PAS-tah-zee
Galbula ruficauda GAL-bull-uh roo-fee-KAW-duh
Galbulidae gal-BULL-uh-dee
Gallicolumba luzonica gal-ih-KUH-lum-buh loo-ZON-ik-uh
Galliformes gal-uh-FORM-eez
Gallinago nigripennis gal-uh-NAY-go NY-gruh-PEN-is
Gavia immer GAV-ee-uh IM-mer
Gavia stellata GAV-ee-uh STEL-lah-tuh
Gaviidae gav-EYE-uh-dee
Gaviiformes gav-eye-uh-FORM-eez
Geococcyx californiana GEE-oh-COCK-siks kal-uh-FORN-uh-kuh
Glareola pratincola glar-ee-OH-luh prat-in-KOH-luh
Glareolidae glar-ee-OH-luh-dee
Glaucis hirsuta GLO-kis her-SOO-tuh
Grallina cyanoleuca GRAL-line-uh SIGH-an-uh-LYOO-kuh

Grallinidae gral-LINE-uh-dee
 Gruidae GROO-uh-dee
 Gruiformes groo-uh-FORM-eez
Grus canadensis GROOS kan-uh-DEN-sis
Grus japonensis GROOS jap-ON-en-sis
Gymnogyps californianus JIM-nuh-jips kal-uh-FORN-uh-kuhs
 Haematopodidae hee-muh-toh-POD-uh-dee
Haematopus unicolor hee-muh-TOH-puhs YOO-nih-KUH-luhr
Harpactes oreskios hahr-PAK-teez or-es-KEE-uhs
Heliornis fulica hee-LEE-or-nis FUL-ik-uh
 Heliornithidae hee-lee-or-NITH-uh-dee
Hemiprocne coronata HEMI-prok-nee koh-roh-NAH-tuh
 Hemiprocidae hemi-PROK-nuh-dee
Himantopus himantopus hih-MAN-tuh-puhs hih-MAN-tuh-puhs
Himatione sanguinea hih-MAY-shun-ee san-GWIN-ee-uh
 Hirundinidae hir-un-DIN-uh-dee
Hirundo pyrrhonota HIR-un-doh pir-uh-NOH-tuh
Hirundo rustica HIR-un-doh RUS-tik-uh
 Hydrobatidae hi-droh-BAT-uh-dee
Hydrophasianus chirurgus hi-droh-fay-SEE-an-uhs KY-ruhr-guhs
Hypocolius ampelinus hi-poh-KOL-ee-uhs am-peh-LINE-uhs
Hypothymis azurea hi-poh-THY-mis az-YOOR-ee-uh
Hypsipetes madagascariensis hip-sih-PEET-eez mad-uh-GAS-kar-EE-en-sis
Icteria virens ik-TER-ee-uh VY-renz
 Icteridae ik-TER-uh-dee
Icterus galbula IK-ter-uhs GAL-bull-uh
Indicator archipelagicus in-dih-KAY-ter AR-kih-peh-LAJ-ik-uhs
 Indicatoridae in-dih-kay-TER-uh-dee
Irena puella eye-REEN-uh poo-ELL-uh
 Irenidae eye-REEN-uh-dee
 Jacanidae juh-KAN-uh-dee
Jynx torquilla JINKS tor-KWILL-uh
Lagopus lagopus LAG-uh-puhs LAG-uh-puhs
 Laniidae lan-EYE-uh-dee
Lanius ludovicianus lan-ee-uhs LOO-doh-vih-SHE-an-uhs
 Laridae LAR-uh-dee

Larus saundersi LAR-uhs SON-ders-eye
Laterallus jamaicensis lat-er-ALL-uhs ja-MAY-sen-sis
Leipoa ocellata LYE-poh-uh os-ELL-ah-tuh
Liosceles thoracicus lye-OS-sel-eez tho-RAS-ik-uhs
Lonchura punctulata LON-chur-uh punk-TOO-lah-tuh
Loxia curvirostra LOK-see-uh KUR-vih-ROS-truh
Macrocephalon maleo ma-crow-SEFF-uh-lon MAL-ee-oh
Macronyx ameliae MA-cron-iks am-EEL-ee-ee
Maluridae mal-YOOR-uh-dee
Malurus splendens MAL-yoor-uhs SPLEN-denz
Megaceryle alcyon MEG-uh-ser-EYE-lee al-SIGH-on
Megapodiidae meg-uh-pod-EYE-uh-dee
Megalaima haemacephala meg-uh-LAY-muh hee-muh-SEFF-ah-luh
Melanocharis versteri mel-uh-NOH-kar-is VER-ster-eye
Meleagris gallopavo mel-ee-AY-gris gal-uh-PAY-voh
Melichneutes robustus mel-ik-NOO-teez ro-BUHS-tuhs
Meliphagidae mel-ih-FAJ-uh-dee
Melospiza melodia mel-uh-SPY-zuh meh-LOH-dee-uh
Menura alberti MEN-yoor-uh AL-bert-eye
Menuridae men-YOOR-uh-dee
Meropidae mer-OP-uh-dee
Meropogon forsteni mer-uh-POH-gon FOR-sten-eye
Merops apiaster MER-ops ay-PEE-as-ter
Mesitornis variegata meh-SIT-or-nis VAIR-ree-uh-GAH-tuh
Mesitornithidae meh-sit-or-NITH-uh-dee
Microeca fascians my-CROW-ek-uh FAS-sin-ans
Mimidae MIH-muh-dee
Mirafra javanica MIR-af-ruh jah-VAH-nik-uh
Mniotilta varia ny-OH-til-tuh VAIR-ee-uh
Moho bishopi MOH-hoh BISH-up-eye
Mohua ochrocephala MOH-hyoo-uh OH-kruh-SEFF-ah-luh
Momotidae moh-MOH-tuh-dee
Momotus momota MOH-moh-tuhs MOH-moh-tuh
Monarchidae mon-ARK-uh-dee
Montifringilla nivalis mon-tih-frin-JILL-uh NYE-val-is
Morus bassanus MOR-uhs BASS-an-uhs
Motacilla cinerea moh-tuh-SILL-uh sin-EAR-ee-uh
Motacillidae moh-tuh-SILL-uh-dee
Muscicapidae mus-kih-KAP-uh-dee

Muscicaps striata MUS-kih-kaps stry-AH-tuh
Musophagidae mus-oh-FAJ-uh-dee
Musophagiformes mus-oh-faj-uh-FORM-eez
Mycteria americana mik-TER-ee-uh uh-mer-uh-KAN-uh
Nectariniidae nek-tar-in-EYE-uh-dee
Neodrepanis coruscans nee-oh-DREH-pan-is KOR-us-kans
Neophron percnopterus NEE-oh-fron perk-NOP-ter-uhs
Nesomimus macdonaldi NEZ-oh-MIH-muhs mak-DON-uld-eye
Nonnula ruficapilla NON-nuh-luh roo-fih-kap-ILL-uh
Notharchus macrorhynchos NOTH-ark-uhs ma-crow-RIN-kuhs
Nothocercus bonapartei NOTH-uh-SER-kuhs BOH-nuh-PART-eye
Nucifraga caryocatactes NYOO-sih-FRAG-uh KAR-ee-oh-KAT-ak-teez
Numenius americanus nyoo-MEN-ee-uhs uh-mer-uh-KAN-uhs
Numida meleagris NYOO-mid-uh mel-ee-AY-gris
Numididae nyoo-MID-uh-dee
Nyctea scandiaca NIK-tee-uh skan-DEE-uh-kuh
Nyctibiidae nik-tih-BYE-uh-dee
Nyctibius griseus nik-TIB-ee-uhs GRIS-ee-uhs
Oceanites oceanicus OH-shih-NYE-teez OH-shih-AN-uh-kuhs
Odontophoridae OH-don-tuh-FOR-uh-dee
Opisthocomidae op-is-thuh-KOM-eh-dee
Opisthocomiformes op-is-thuh-kom-eh-FORM-eez
Opisthocomus hoazin op-is-thuh-KOM-uhs HOH-ah-sin
Oriolidae or-ih-OH-lu-dee
Oriolus oriolus or-ih-OH-luhs or-ih-OH-luhs
Ortalis vetula OR-tal-is VET-uh-luh
Orthonychidae or-thuh-NIK-uh-dee
Orthonyx temminckii OR-thon-iks TEM-ink-ee-eye
Otididae oh-TID-uh-dee
Otis tarda OH-tis TAR-duh
Otus asio OH-tuhs AS-ee-oh
Oxyruncidae ok-sih-RUN-kuh-dee
Oxyruncus cristatus OK-sih-RUN-kuhs KRIS-tah-tuhs
Pachycephala pectoralis pak-ih-SEFF-ah-luh pek-TOR-al-is
Pachycephalidae pak-ih-seff-AL-uh-dee

Pachyramphus aglaiae PAK-ih-RAM-fuhs ag-LAY-ee-ee
Pandion haliaetus PAN-die-on HAL-ee-ee-tuhs
Parabuteo unicinctus par-uh-BYOO-tee-oh YOO-nih-SINK-tuhs
Paradisaeidae par-uh-die-SEE-uh-dee
Pardalotidae par-duh-LOT-uh-dee
Pardalotus striatus par-duh-LOT-uhs stry-AH-tuhs
Paridae PAR-uh-dee
Parulidae par-YOOL-uh-dee
Parus major PAR-uhs MAY-jur
Passer domesticus PASS-er doh-MES-tuh-kuhs
Passerculus sandwichensis pass-ER-kyoo-luhs SAND-wich-en-sis
Passeridae pass-ER-uh-dee
Passeriformes pass-er-uh-FORM-eez
Pelecanidae pel-uh-KAN-uh-dee
Pelecaniformes pel-uh-kan-uh-FORM-eez
Pelecanoides urinatrix pel-uh-KAN-oi-deez yoor-in-AY-triks
Pelecanoididae pel-uh-kan-OI-duh-dee
Pelecanus erythrorhynchos pel-uh-KAN-uhs eh-RITH-roh-RIN-kuhs
Pelecanus occidentalis pel-uh-KAN-uhs ok-sih-DEN-tal-is
Pericrocotus igneus per-ih-CROW-kot-uhs IG-nee-uhs
Petroicidae pet-ROY-kuh-dee
Phacellodomus ruber fay-sell-uh-DOH-muhs ROO-ber
Phaethon lepturus FEE-thon LEPT-yoor-uhs
Phaethontidae fee-THON-tuh-dee
Phalacrocoracidae fal-uh-crow-kor-AY-suh-dee
Phalacrocorax carbo fal-uh-crow-cor-aks KAR-boh
Pharomachrus mocinno far-uh-MAK-ruhs MOH-sin-noh
Phasianidae fay-see-AN-uh-dee
Philepittidae fil-uh-PIT-tuh-dee
Phoenicopteridae FEE-nih-kop-TER-uh-dee
Phoenicopteriformes FEE-nih-KOP-ter-uh-FORM-eez
Phoenicopterus ruber FEE-nih-KOP-ter-uhs ROO-ber
Phoeniculidae FEE-nih-KYOO-luh-dee
Phoeniculus purpureus fee-NIH-kyoo-luhs purh-PURH-ee-uhs
Phyllastrephus scandens FIL-uh-STRE-fuhs SKAN-denz
Phylloscopus borealis FIL-uh-SKOH-puhs BOHR-ee-al-is
Phytotoma raimondii fye-toh-TOH-muh RAY-mund-ee-eye

Phytotomidae fye-toh-TOH-muh-dee
Picathartes oreas PIK-uh-THAR-teez OR-ee-uhs
Picoides borealis PIK-oy-deez BOHR-ee-al-is
Picidae PIS-uh-dee
Piciformes pis-uh-FORM-eez
Pinguinus impennis PIN-gwin-uhs IM-pen-is
Pipra filicauda PIP-ruh fil-eh-KAW-duh
Pipridae PIP-ruh-dee
Pitangus sulphuratus PIT-an-guhs sul-FUR-ah-tuhs
Pitohui kirhocephalus PIT-oo-ee kir-uh-SEFF-ah-luhs
Pitta angolensis PIT-tuh an-GOH-len-sis
Pitta sordida PIT-tuh SOR-dih-duh
Pittidae PIT-tuh-dee
Pityriasis gymnocephala pit-ih-RYE-uh-sis jim-nuh-SEFF-ah-luh
Plectoryncha lanceolata PLEK-tuh-RIN-kuh LAN-see-oh-LAH-tuh
Plectrophenax nivalis PLEK-troh-FEN-aks NYE-val-is
Ploceidae ploh-SEE-uh-dee
Ploceus cucullatus PLOH-see-uhs kyoo-KYOO-lah-tuhs
Ploceus philippinus PLOH-see-uhs fil-ih-PINE-uhs
Podargidae pod-AR-juh-dee
Podargus strigoides POD-ar-guhs STRI-goy-deez
Podiceps cristatus POD-ih-seps KRIS-tah-tuhs
Podicipedidae pod-ih-sih-PED-uh-dee
Podicipediformes pod-ih-sih-ped-uh-FORM-eez
Poecile atricapilla PEE-suh-lee ay-trih-kap-ILL-uh
Pogoniulus chrysoconus po-go-NYE-uh-luhs KRIS-oh-KON-uhs
Polioptila caerulea poh-lih-OP-til-uh see-ROO-lee-uh
Polyborus plancus pol-ih-BOHR-uhs PLAN-kuhs
Pomatostomidae poh-may-tuh-STOH-muh-dee
Pomatostomus temporalis poh-may-tuh-STOH-muhs tem-PER-al-is
Prionops plumatus PRY-on-ops PLOO-mah-tuhs
Procellariidae pro-sell-ar-EYE-uh-dee
Procellariiformes pro-sell-ar-eye-uh-FORM-eez
Promerops cafer PRO-mer-ops KAF-er
Prunella modularis proo-NELL-uh mod-YOO-lar-is
Prunellidae proo-NELL-uh-dee

Psaltriparus minimus sol-TRI-par-uhs MIN-ih-muhs
Psittacidae sit-UH-suh-dee
Psittaciformes sit-uh-suh-FORM-eez
Psittacula krameri sit-UH-kuh-luh KRAY-mer-eye
Psittacus erithacus SIT-uh-kuhs eh-RITH-uh-kuhs
Psittirostra cantans SIT-uh-ROS-truh KAN-tanz
Psophia crepitans SOH-fee-uh KREP-ih-tanz
Psophiidae soh-FYE-uh-dee
Pterocles namaqua TER-oh-kleez nah-MAH-kwuh
Pteroclididae ter-oh-KLID-uh-dee
Pterocliiformes ter-oh-cluh-FORM-eez
Pterocnemia pennata ter-ok-NEE-mee-uh PEN-ah-tuh
Ptilonorhynchidae TIL-on-oh-RIN-kuh-dee
Ptilonorhynchus violaceus TIL-on-oh-RIN-kuhs vee-o-LAY-see-uhs
Ptiloris victoriae TIL-or-is vik-TOR-ee-ee
Ptyonoprogne rupestris TY-on-oh-PROG-nee ROO-pes-tris
Puffinus puffinus PUFF-in-uhs PUFF-in-uhs
Pycnonotidae pik-noh-NOH-tuh-dee
Pycnonotus barbatus pik-noh-NOH-tuhs BAR-bat-uhs
Rallidae RALL-uh-dee
Ramphastidae ram-FAS-tuh-dee
Ramphastos toco RAM-fas-tuhs TOH-coh
Raphidae RAF-uh-dee
Raphus cucullatus RAF-uhs kyoo-KYOO-lah-tuhs
Recurvirostra americana re-CURV-ih-ROS-truh uh-mer-uh-KAN-uh
Recurvirostridae re-CURV-ih-ROS-truh-dee
Remizidae rem-IZ-uh-dee
Rhabdornis mysticalis RAB-dor-nis mis-TIH-kal-is
Rhabdornithidae rab-dor-NITH-uh-dee
Rheidae REE-uh-dee
Rhinocryptidae RYE-noh-KRIP-tuh-dee
Rhinoplax vigil RYE-noh-plaks VIH-jil
Rhipidura albicollis rip-ih-DYOOR-uh ahl-bih-KOLL-is
Rhipidura leucophrys rip-ih-DYOOR-uh LYOO-kuh-frees
Rhipiduridae rip-ih-DYOOR-uh-dee
Rhynochetidae rye-noh-KEE-tuh-dee
Rhynochetos jubatus rye-noh-KEE-tuhs JOO-bat-uhs
Rostratula benghalensis ros-TRAT-uh-luh ben-GOL-en-sis

Rostratulidae ros-trat-UH-luh-dee
Rupicola rupicola roo-pih-KOH-luh roo-pih-KOH-luh
 Sagittariidae saj-ih-tar-EYE-uh-dee
Sagittarius serpentarius saj-ih-TAR-ee-uhs ser-pen-TAR-ee-uhs
Sarcoramphus papa sar-KOH-ram-fuhs PAH-pah
Sarothrura elegans sar-oh-THROO-ruh EL-eh-ganz
Saxicola torquata sax-ih-KOH-luh TOR-kwah-tuh
Sayornis phoebe SAY-ro-nis FEE-bee
Schetba rufa SKET-buh ROO-fuh
 Scolopacidae skoh-loh-PAY-suh-dee
 Scopidae SKOH-puh-dee
Scopus umbretta SKOH-puhs UM-bret-tuh
Semnornis ramphastinus SEM-nor-nis ram-FAS-tin-uhs
Sialia sialis sigh-AL-ee-uh SIGH-al-is
Sitta canadensis SIT-tuh kan-uh-DEN-sis
Sitta europaea SIT-tuh yoor-uh-PEE-uh
 Sittidae SIT-tuh-dee
Smithornis capensis SMITH-or-nis KAP-en-sis
Somateria spectabilis soh-muh-TER-ee-uh spek-TAB-ih-lis
Sphecotheres vieilloti sfek-UH-ther-eez VYE-ill-oh-eye
 Spheniscidae sfen-IS-kuh-dee
 Sphenisciformes sfen-is-kuh-FORM-eez
Spheniscus magellanicus SFEN-is-kuhs maj-eh-LAN-ik-uhs
Sphyrapicus varius sfir-AP-ik-uhs VAIR-ee-uhs
Steatornis caripensis stee-AT-or-nis kar-IH-pen-sis
 Steatornithidae stee-at-or-NITH-uh-dee
Stercorarius parasiticus ster-koh-RARE-ee-uhs par-uh-SIT-ik-uhs
Stiltia isabella STILT-ee-uh IZ-uh-BELL-uh
 Strigidae STRIJ-uh-dee
 Strigiformes strij-uh-FORM-eez
Struthio camelus STROO-thee-oh KAM-el-uhs
 Struthionidae stroo-thee-ON-uh-dee
 Struthioniformes stroo-thee-on-uh-FORM-eez
 Sturnidae STURN-uh-dee
Sturnus vulgaris STURN-uhs VUL-gar-is
Sula nebouxii SUL-uh NEB-oo-ee-eye
 Sulidae SUL-uh-dee
 Sylviidae sil-VYE-uh-dee

Syrnhaptes paradoxus SIR-rap-teez PAR-uh-DOKS-uhs
Taeniopygia guttata tee-nee-uh-PIJ-ee-uh GUT-tah-tuh
Terpsiphone viridis terp-SIF-oh-nee VIR-id-is
Thamnophilus doliatus THAM-nuh-FIL-uhs dol-EE-ah-tuhs
Thinocoridae thin-uh-KOR-uh-dee
Threskiornis aethiopicus THRES-kih-OR-nis EE-thi-OH-pi-kuhs
Threskiornithidae thres-kih-or-NITH-uh-dee
Timaliidae tim-al-EYE-uh-dee
Tinamidae tin-AM-uh-dee
Todidae TOH-duh-dee
Todus multicolor TOH-duhs MULL-tee-KUH-luhr
Tragopan satyra TRAG-uh-pan SAT-eye-ruh
Trichoglossus haematodus TRIK-uh-GLOS-uhs HEE-muh-TOH-duhs
Trochilidae trok-ILL-uh-dee
Troglodytes aedon trog-luh-DIE-teez EE-don
Troglodytes troglodytes trog-luh-DIE-teez trog-luh-DIE-teez
Troglodytidae trog-luh-DIE-tuh-dee
Trogonidae troh-GON-uh-dee
Trogoniformes troh-gon-uh-FORM-eez
Turdidae TUR-duh-dee
Turdus migratorius TUR-duhs my-gruh-TOR-ee-uhs
Turnicidae tur-NIS-uh-dee
Turnix sylvatica TUR-niks sil-VAT-ik-uh
Turnix varia TUR-niks VAIR-ee-uh
Tyrannidae tie-RAN-uh-dee
Tyto alba TIE-toh AHL-buh
Tytonidae tie-TON-uh-dee
Upupa epops UP-up-uh EE-pops
Upupidae up-UP-uh-dee
Uria aalge YOOR-ee-uh AHL-jee
Vanellus vanellus vah-NELL-uhs vah-NELL-uhs
Vangidae VAN-juh-dee
Vireo atricapillus VIR-e-oh ay-trih-kap-ILL-uhs
Vireonidae vir-e-ON-uh-dee
Volatinia jacarina vol-uh-TIN-ee-uh jak-uh-REE-nuh
Zenaida macroura ZEN-ay-duh ma-crow-YOOR-uh
Zosteropidae zos-ter-OP-uh-dee
Zosterops japonicus ZOS-ter-ops jap-ON-ik-uhs



Words to Know

A

Acacia: A thorny tree, or any of several trees, shrubs, or other plants of the legume family that tend to be ornamental.

Adaptation: Any structural, physiological, or behavioral trait that aids an organism's survival and ability to reproduce in its existing environment.

Adaptive evolution: Changes in organisms over time that allow them to cope more efficiently with their biomes.

Adaptive shift: An evolutionary process by which the descendants of an organism adapt, over time, to ecological niches, or natural lifestyles, that are new to that organism and usually filled in other places by much different organisms.

Aftershaft: The secondary feather that branches from the base of the main feather.

Algae: Tiny plants or plantlike organisms that grow in water and in damp places.

Alpine: Used to refer to the mountainous region of the Alps, or to describe other areas related to mountains.

Altitude: The height of something in relation to the earth's surface or sea level.

Altricial: Chicks that hatch at an early developmental stage, often blind and without feathers.

Anisodactyl: Toe arrangement with three toes pointing forward and one toe facing backward.

Anting: A behavior birds use to interact with ants, either by rolling in an ant hill or placing ants into their feathers.

Aphrodisiac: Anything that intensifies or arouses sexual desires.

Aquatic: Related to water.

Arachnid: Eight-legged animals, including spiders, scorpions, and mites.

Arboreal: Living primarily or entirely in trees and bushes.

Arthropod: A member of the largest single animal phylum, consisting of organisms with segmented bodies, jointed legs or wings, and exoskeletons.

Asynchronous hatching: A situation in which the eggs in a nest hatch at different times, so that some chicks (the older ones) are larger and stronger than others.

Australasia: Region consisting of Australia, New Zealand, New Guinea, and the neighboring islands of the South Pacific.

Avian: Relating to birds.

Aviary: Large enclosure or cage for birds.

B

Barb: Stiff filament that forms the framework of a feather.

Bib: Area under the bill of a bird, just above the breast.

Biodiversity: Abundance of species in a particular biome or geographical area.

Biparental: Both male and female of the species incubate, feed, and fledge their young.

Bower: Shady, leafy shelter or recess.

Brackish: Water that is a mix of freshwater and saltwater.

Bromeliads: A family of tropical plants. Many bromeliads grow high on the branches and trunks of trees rather than in the soil.

Brood: Young birds that are born and raised together.

Brood parasite: An animal species, most often a bird, in which the female lays its own eggs in the nests of other bird species. The host mother raises the chick as if it were her own. This behavior has also been observed in fish.

Brushland: Habitat characterized by a cover of bushes or shrubs.

Burrow: Tunnel or hole that an animal digs in the ground to use as a home.

C

Cache: A hidden supply area.

Camouflage: Device used by an animal, such as coloration, allowing it to blend in with the surroundings to avoid being seen by prey and predators.

Canopy: The uppermost layer of a forest formed naturally by the leaves and branches of trees and plants.

Cap: Patch on top of bird's head.

Carcass: The dead body of an animal. Vultures gather around a carcass to eat it.

Carnivore: Meat-eating organism.

Carion: Dead and decaying animal flesh.

Caruncle: A genetically controlled outgrowth of skin on an animal, usually for dominance or mating displays.

Casque: A horny growth on the head of a bird resembling a helmet.

Cavity: Hollow area within a body.

Churring: Referring to a low, trilled, or whirring sound that some birds make.

Circumpolar: Able to live at the North and South Pole.

Clutch: Group of eggs hatched together.

Collagen: A type of protein formed within an animal body that is assembled into various structures, most notably tendons.

Colony: A group of animals of the same type living together.

Comb: Fleshy red crest on top of the head.

Coniferous: Refers to evergreen trees, such as pines and firs, that bear cones and have needle-like leaves that are not shed all at once.

Coniferous forest: An evergreen forest where plants stay green all year.

Continental margin: A gently sloping ledge of a continent that is submerged in the ocean.

Convergence: In adaptive evolution, a process by which unrelated or only distantly related living things come to resemble one another in adapting to similar environments.

Cooperative breeding: A social organization of breeding where several birds (not just the parents) feed a group of hatchlings.

Courtship: Behaviors related to attracting a mate and preparing to breed.

Courtship display: Actions of a male and female animal that demonstrate their interest in becoming or remaining a pair for breeding.

Covert: Term derived from the word for something that is concealed, and used to describe the small feathers that cover the bases of the larger feathers on a bird's wing and tail.

Crèche: A group of young of the same species, which gather together in order to better avoid predators.

Crepuscular: Most active at dawn and dusk.

Crest: A group of feathers on the top or back of a bird's head.

Critically Endangered: A term used by the IUCN in reference to a species that is at an extremely high risk of extinction in the wild.

Crop: A pouch-like organ in the throat where crop milk is produced.

Crop milk: A cheesy, nutritious substance produced by adult pigeons and doves and fed to chicks.

Crown: Top of a bird's head.

Cryptic: To be colored so as to blend into the environment.

D

Deciduous: Shedding leaves at the end of the growing season.

Deciduous forest: A forest with four seasons in which trees drop their leaves in the fall.

Decurved: Down-curved; slightly bent.

Defensive posture: A position adopted to frighten away potential predators.

Deforestation: Those practices or processes that result in the change of forested lands to non-forest uses, such as human settlement or farming. This is often cited as one of the major causes of the enhanced greenhouse effect.

Distal: Away from the point of attachment.

Distraction display: Behaviors intended to distract potential predators from the nest site.

Diurnal: Refers to animals that are active during the day.

Domesticated: Tamed.

Dominant: The top male or female of a social group, sometimes called the alpha male or alpha female.

Dormant: Not active.

Dorsal: Located in the back.

Dung: Feces, or solid waste from an animal.

E

Ecological niche: The role a living creature, plant or animal, plays in its community.

Ecotourist: A person who visits a place in order to observe the plants and animals in the area while making minimal human impact on the natural environment.

Elevation: The height of land when measured from sea level.

Endangered: A term used by the U.S. Endangered Species Act of 1973 and by the IUCN in reference to a species that is facing a very high risk of extinction from all or a significant portion of its natural home.

Endemic: Native to or occurring only in a particular place.

Epiphyte: Plant such as mosses that grows on another plant but does not depend on that host plant for nutrition.

Estuary: Lower end of a river where ocean tides meet the river's current.

Eucalyptus: Tall, aromatic trees.

Evolve: To change slowly over time.

Extinct: A species without living members.

Extinction: The total disappearance of a species or the disappearance of a species from a given area.

Eyespot: Colored feathers on the body that resemble the eyes of a large animal, which function in helping to frighten away potential predators.

F

Family: A grouping of genera that share certain characteristics and appear to have evolved from the same ancestors.

Feather tract: Spacing of feathers in a pattern.

Feces: Solid body waste.

Fermentation: Chemical reaction in which enzymes break down complex organic compounds into simpler ones. This can make digestion easier.

Fledgling: Bird that has recently grown the feathers necessary to fly.

Flightless: Species that have lost the ability to fly.

Flock: A large group of birds of the same species.

Forage: To search for food.

Frugivore: Animal that primarily eats fruit. Many bats and birds are frugivores.

G

Gape: The width of the open mouth.

Genera: Plural of genus.

Generalist feeder: A species that eats a wide variety of foods.

Genus (pl. genera): A category of classification made up of species sharing similar characteristics.

Granivore: Animal that primarily eats seeds and grains.

Grassland: Region in which the climate is dry for long periods of the summer, and freezes in the winter. Grasslands are characterized by grasses and other erect herbs, usually without trees or shrubs, and occur in the dry temperate interiors of continents.

Gregarious: Used to describe birds that tend to live in flocks, and are very sociable with other birds. The word has come to be used to describe people who are very outgoing and sociable, as well.

H

Habitat: The area or region where a particular type of plant or animal lives and grows.

Hallux: The big toe, or first digit, on the part of the foot facing inwards.

Hatchling: Birds that have just hatched, or broken out of the egg.

Hawking: Hunting for food by sitting on a perch, flying out and capturing the food, and returning to the perch to eat.

Heath: Grassy and shrubby uncultivated land.

Herbivore: Plant eating organism.

Heterodactyl: With toes pointed in opposite directions; usually with first and second inner front toes turned backward and the third and fourth toes turned forward.

Homeotherm: Organism with stable independent body temperature.

Host: A living plant or animal from which a parasite takes nutrition

I

Igapó: Black waters of the Amazon river area.

Incubation: Process of sitting on and warming eggs in order for them to hatch.

Indicator species: A bird or animal whose presence reveals a specific environmental characteristic

Indigenous: Originating in a region or country.

Insectivore: An animal that eats primarily insects.

Introduced: Not native to the area; brought in by humans.
Invertebrate: Animal lacking a spinal column (backbone).
Iridescent: Having a lustrous or brilliant appearance or quality.
IUCN: Abbreviation for the International Union for Conservation of Nature and Natural Resources, now the World Conservation Union. A conservation organization of government agencies and nongovernmental organizations best known for its Red Lists of threatened an

K

Keel: A projection from a bone.
Keratin: Protein found in hair, nails, and skin.
Kleptoparasite: An individual that steals food or other resources from another individual.

L

Lamellae: Plural of lamella; comb-like bristles inside a flamingo's bill.
Larva (pl. larvae): Immature form (wormlike in insects; fishlike in amphibians) of an organism capable of surviving on its own. A larva does not resemble the parent and must go through metamorphosis, or change, to reach its adult stage.
Lek: An area where birds come to display courtship behaviors to attract a mate (noun); to sing, flutter, hop and perform other courtship behaviors at a lek (verb).
Lerp: Sugary lumps of secretions of psyllid insects, small plant-sucking insects living on Eucalyptus trees.
Lichen: A complex of algae and fungi found growing on trees, rocks, or other solid surfaces.
Litter: A layer of dead vegetation and other material covering the ground.

M

Mandible: Upper or lower part of a bird's bill; jaw.
Mangrove: Tropical coastal trees or shrubs that produce many supporting roots and that provide dense vegetation.
Mantle: Back, inner-wing, and shoulder area.
Mesic: Referring to any area that is known to be wet or moist.
Midstory: The level of tropical forests between ground level (understory) and treetops (overstory).

Migrate: To move from one area or climate to another as the seasons change, usually to find food or to mate..

Mixed-species flock: A flock of birds that includes multiple species.

Mobbing: A group of birds gathering together to defend themselves from another large bird by calling loudly and flying at the intruder.

Molt: The process by which an organism sheds its outermost layer of feathers, fur, skin, or exoskeleton.

Monogamous: Refers to a breeding system in which a male and a female mate only with each other during a breeding season or lifetime.

Montane forest: Forest found in mountainous areas.

Mutualism: A relationship between two species where both gain something and neither is harmed.

N

Nape: Back part of the neck.

Near Threatened: A category defined by the IUCN suggesting that a species could become threatened with extinction in the future.

Nectar: Sweet liquid secreted by the flowers of various plants to attract pollinators (animals that pollinate, or fertilize, the flowers).

Neotropical: Relating to a geographic area of plant and animal life east, south, and west of Mexico's central plateau that includes Central and South America and the West Indies.

Nest box: A small, human-made shelter intended as a nest site for birds. Usually a rectangular wooden box with a round entrance hole.

Nestling: Young bird unable to leave the nest.

New World: Made up of North America, Central America, and South America; the western half of the world.

Niche: A habitat with everything an animal needs.

Nictating membranes: Clear coverings under the eyelids that can be moved over the eye.

Nocturnal: Occuring or active at night.

O

Omnivore: A plant- and meat- eating animal.

Opportunistic feeder: One that is able to take advantage of whatever food resources become available.

Overstory: The level of tropical forests nearest treetops.

P

Paleartic: The area or subregion of Europe, Africa, and the Middle East, that is north of the Tropic of Cancer, and the area north of the Himalayas mountain range.

Pampas: Open grasslands of South America.

Parasite: An organism that lives in or on a host organism and that gets its nourishment from that host.

Pelagic: To live on the open ocean.

Permafrost: Permanently frozen lands.

Plain: Large expanse of land that is fairly dry and with few trees.

Plumage: Feathers of a bird.

Pneumatic: Air-filled cavities in the bones of birds.

Poisonous: Containing or producing toxic materials.

Pollen: Dust-like grains or particles produced by a plant that contain male sex cells.

Pollinate: To transfer pollen from the male organ to the female organ of a flower.

Polyandry: A mating system in which a single female mates with multiple males.

Polygamy: A mating system in which males and females mate with multiple partners.

Polygynous lek: A mating system in which several males display together for the attention of females. A female, after watching the displaying males, may mate with one or more males in the lek.

Polygyny: A mating system in which a single male mates with multiple females.

Precocial: Young that hatch at an advanced stage of development, with feathers and able to move.

Predator: An animal that eats other animals.

Preen: To clean and smooth feathers using the bill.

Preen gland: A gland on the rear of most birds which secretes an oil the birds use in grooming.

Prey: Organism hunted and eaten by a predator.

Primary forest: A forest characterized by a full-ceiling canopy formed by the branches of tall trees and several layers of smaller trees. This type of forest lacks ground vegetation because sunlight cannot penetrate through the canopy.

Promiscuity: Mating in which individuals mate with as many other individuals as they can or want to.

Pupae: Plural of pupa; developing insects inside cocoon.

Q

Quill: Hollow feather shaft.

R

Rainforest: An evergreen woodland of the tropics distinguished by a continuous leaf canopy and an average rainfall of about 100 inches (250 centimeters) per year.

Raptor: A bird of prey.

Regurgitate: Eject the contents of the stomach through the mouth; to vomit.

Resident: Bird species that do not migrate.

Retrices: Plural of retrix; paired flight feathers of the tail, which extend from the margins of a bird's tail.

Rictal bristles: Modified feathers composed mainly of the vertical shaft.

Riparian: Having to do with the edges of streams or rivers.

Riverine: Located near a river.

Roe: Fish eggs.

Roost: A place where animals, such as bats, sit or rest on a perch, branch, etc.

S

Savanna: A biome characterized by an extensive cover of grasses with scattered trees, usually transitioning between areas dominated by forests and those dominated by grasses and having alternating seasonal climates of precipitation and drought.

Scavenger: An animal that eats carrion.

Scrub forest: A forest with short trees and shrubs.

Secondary forest: A forest characterized by a less-developed canopy, smaller trees, and a dense ground vegetation found on the edges of forests.

Sedentary: Living in a fixed location, as with most plants, tunicates, sponges, etc. Contrast with motile.

Semi-precocial: To be born in a state between altricial and precocial. Semi-precocial chicks can usually leave the nest after a few days.

Sequential polyandry: A mating system in which a female mates with one male, leaves him a clutch of eggs to tend, and then mates with another male, repeating the process throughout the breeding season.

Serial monogamy: Mating for a single nesting then finding another mate or mates for other nestings.

Serrated: Having notches like a saw blade.

Sexual dichromatism: Difference in coloration between the sexes of a species.

Sexual dimorphism: Differences in size and in shapes of body or body parts between sexes of a species.

Sexually mature: Capable of reproducing.

Sheath: Tubular-shaped covering used to protect a body part.

Snag: A dead tree, still standing, with the top broken off.

Social: Species in which individuals are found with other individuals of the same species.

Solitary: Living alone or avoiding the company of others.

Specialist feeder: A species that eats only one or a few food items.

Species: A group of living things that share certain distinctive characteristics and can breed together in the wild.

Squab: Young pigeons and doves.

Steppe: Wide expanse of semiarid relatively level plains, found in cool climates and characterized by shrubs, grasses, and few trees.

Sternum: The breastbone.

Subalpine forest: Forest found at elevations between 9,190 and 10,500 feet (2,800 and 3,200 meters).

Sub-canopy: Below the treetops.

Subordinate: An individual that has lower rank than other, dominant, members of the group.

Subspecies: Divisions within a species based on significant differences and on genetics. Subspecies within a species look different from one another but are still genetically close to be considered separate species. In most cases, subspecies can interbreed and produce

Subtropical: Referring to large areas near the tropics that are not quite as warm as tropical areas.

Syndactyly: A condition in which two bones (or digits) fuse together to become a single bone.

Syrinx (pl. syrinxes): Vocal organ of birds.

T

Taiga: Subarctic wet evergreen forests.

Tail coverts: The short feathers bordering the quills of the long tail feathers of a bird. They may be over-tail or under-tail (i.e., top or bottom).

Tail streamer: A central part of a bird's tail that is longer than other parts.

Talon: A sharp hooked claw.

Taxonomy: The science dealing with the identification, naming, and classification of plants and animals.

Temperate: Areas with moderate temperatures in which the climate undergoes seasonal change in temperature and moisture. Temperate regions of the earth lie primarily between 30 and 60° latitude in both hemispheres.

Terrestrial: Relating to the land or living primarily on land.

Territorial: A pattern of behavior that causes an animal to stay in a limited area and/or to keep certain other animals of the same species (other than its mate, herd, or family group) out of the

Tetrapod: Any vertebrate having four legs or limbs, including mammals, birds, reptiles, and others.

Thermal: Rising bubble of warm air.

Thicket: An area represented by a thick, or dense, growth of shrubs, underbrush, or small trees.

Threat display: A set of characteristic motions used to communicate aggression and warning to other individuals of the same species.

Threatened: Describes a species that is threatened with extinction.

Torpor: A short period of inactivity characterized by an energy-saving, deep sleep-like state in which heart rate, respiratory rate and body temperature drop.

Tropical: The area between 23.5° north and south of the equator. This region has small daily and seasonal changes in temperature, but great seasonal changes in precipitation. Generally, a hot and humid climate that is completely or almost free of frost.

Tundra: A type of ecosystem dominated by lichens, mosses, grasses, and woody plants. It is found at high latitudes (arctic tundra) and high altitudes (alpine tundra). Arctic tundra is underlain by permafrost and usually very wet.

U

Understory: The trees and shrubs between the forest canopy and the ground cover.

V

Vertebra (pl. vertebrae): A component of the vertebral column, or backbone, found in vertebrates.

Vertebrate: An animal having a spinal column (backbone).

Vocalization: Sound made by vibration of the vocal tract.

Vulnerable: An IUCN category referring to a species that faces a high risk of extinction.

W

Wattle: A fold of skin, often brightly colored, that hangs from the throat area.

Wetlands: Areas that are wet or covered with water for at least part of the year and support aquatic plants, such as marshes, swamps, and bogs.

Wingbars: Stripes of coloration on the wing.

Wingspan: The distance from wingtip to wingtip when the wings are extended in flight.

X

Xeric forest: Forest adapted to very dry conditions.

Z

Zygodactyl: Two pairs of toes, with two toes pointing forward and two toes facing backward.



Getting to Know Birds

FEATHERS

It is easy to tell that an animal is a bird. If it has feathers, it is one of the more than 8,600 kinds of birds in the world. Birds can also be recognized by their bills, wings, and two legs, but feathers are what make them different from every other animal.

First feathers

Scientists are not sure when feathers first appeared on animals. They might have begun as feather-like scales on some of the dinosaurs. In 1861, fossils of a feathered animal, *Archaeopteryx* (ar-key-OP-tuh-rix), were found in Germany. These are the first animals known to scientists that were covered with feathers. These crow-sized animals with heads like lizards lived on the Earth about 150 million years ago.

How birds use different types of feathers

Feathers in most birds' wings and tail help them fly. Each of these flight feathers has a stiff shaft that goes from one end to the other. Flight feathers are light, but they are surprisingly strong. Birds that can fly can escape enemies and get to food sources and nesting places they wouldn't be able to walk to.

Feathers have many other uses in addition to flight. The outer feathers on a bird's body give it color and shape and help to waterproof the bird. Outer feathers with patterns are useful for camouflaging some birds, and colorful feathers send messages. For example, male birds show off their bright feathers to impress females or wave them as warnings to others. Downy inner feathers trap air to keep the bird warm.



Archaeopteryx is the first animal known to be covered with feathers. (© François Gohier/Photo Researchers, Inc. Reproduced by permission.)

Scientists have names for different types of feathers and also for groups of feathers according to where they grow on a bird's body.

Flight

Most birds' bodies are built for flight. Air sacs in their chests and hollow bones keep them light. They have powerful chest muscles that move their wings. The wing and tail feathers are tough, and birds can turn some of them for steering. A bird usually shuts its wing feathers to trap the air as its wings go down. This lifts the bird into the air and pushes it forward. Then, as it raises the wings, it fans the feathers open to let the air through.

How birds fly depends somewhat on the shape of their wings. Vultures and seabirds have long, narrow wings that are great for soaring high on air currents or gliding over the ocean. Songbirds have short, broad wings that are made for flapping as the birds fly among trees. Falcons have narrow, pointed wings that curve backward. These wings help them fly fast and steer well. But all birds flap their wings at times and glide at other times, depending on what they are doing and how the wind is blowing.

Some birds use their wings in unusual ways. Hummingbirds can flap their wings about fifty times every second. This allows them to hover at one spot as they lap nectar from flowers. Flipper-like wings help penguins to "fly" through the water, and even ostriches use their wings to keep their balance as they run.

The wing of a bird is rounded on top and flat on the bottom, similar to the wing of an airplane. This shape is what gives the bird the lift it needs to stay up in the air.

Birds take off and land facing the wind. Small birds (up to the size of pigeons) can jump up from the ground and fly right off into the air. Larger birds have to jump off something high or run along the ground or the water to get going.

BIRDS' BODIES

Different, but the same

A 400-pound (181-kilogram) ostrich may seem very different from a tiny bee hummingbird that weighs less than an ounce

(about 2 grams). But all birds have many things in common besides having feathers. They have bills, two legs, a backbone, they are warm-blooded (keep an even body temperature), and they lay hard-shelled eggs.

Body shapes

Birds have many different shapes. Wading birds such as flamingos have long necks and long legs. Eagles have short necks and legs. But both kinds of birds are able to find their food in the water. Falcons and penguins have sleek, torpedo-shaped bodies that are perfect for catching speedy prey. Turkeys' heavier bodies are just right for their quiet lives in the forest searching for acorns and insects.

Bill shapes

Bird bills come in a wide variety of shapes. They use their bills to gather food, build nests, fix their feathers, feed their young, attract mates, and attack their enemies. The type of food a bird eats depends on its bills' shape. For example, the sturdy bills of sparrows are good for cracking seeds, and hawks' hooked beaks are perfect for tearing up prey.

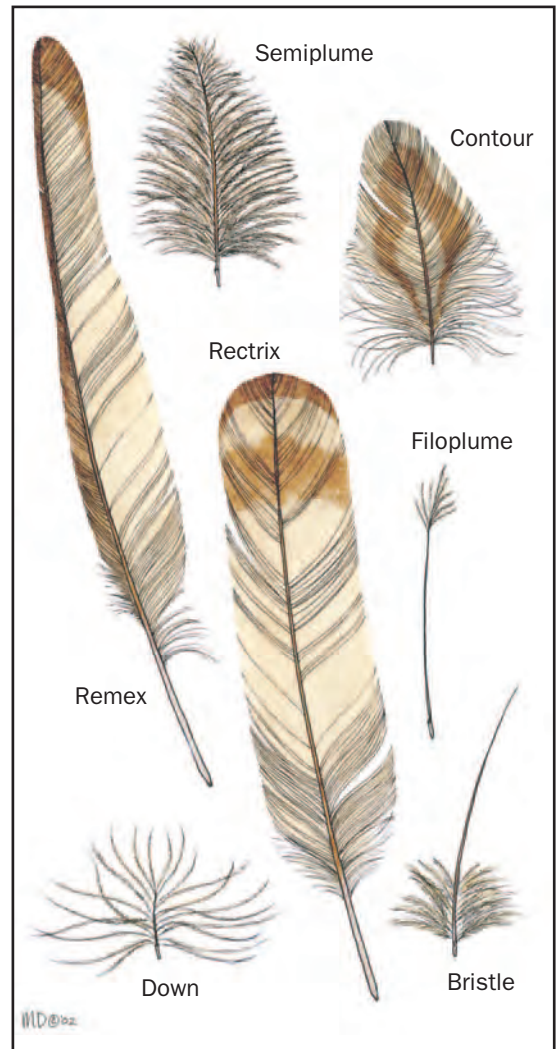
Legs and feet

Bird legs and feet fit their many different lifestyles. For example, hawks have sharp talons for hunting and ducks have webbed feet to help them swim. Some of the birds that spend most of their lives in the air or on the water are not good at walking. Most birds have four toes, but some have three, and ostriches have only two.

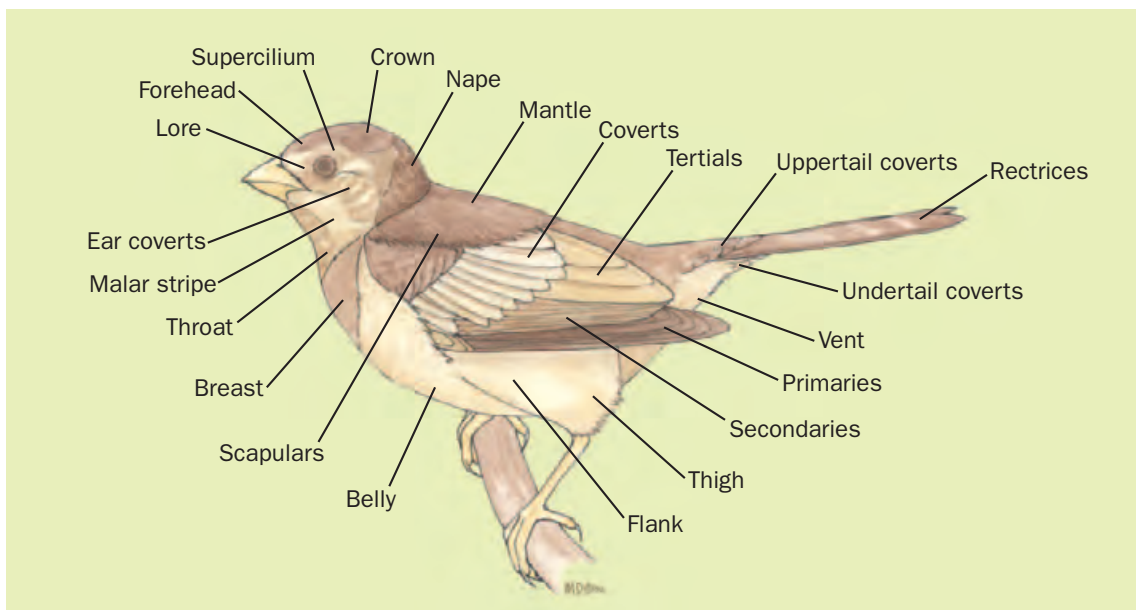
BIRDS' SENSES

Sight

For most birds, sight is their best sense. They can see much better than humans, and they can see in color, unlike many mammals.



A bird's stiffest feathers are the remex feathers of the wing and the rectrix feathers of the tail. The outside of a bird's body is covered with contour feathers that give the body shape and waterproof the bird. Underneath the contour feathers are the semiplume and down feathers that help keep the bird warm. Filoplumes lie alongside the contour feathers and help the bird tell if its feathers are in place. Some birds have bristles around their beaks that allow them to feel insects in the air. (Illustration by Marguette Dongvillo. Reproduced by permission.)



Scientists have names for groups of feathers according to where they grow on a bird's body. (Illustration by Marguette Dongvillo. Reproduced by permission.)

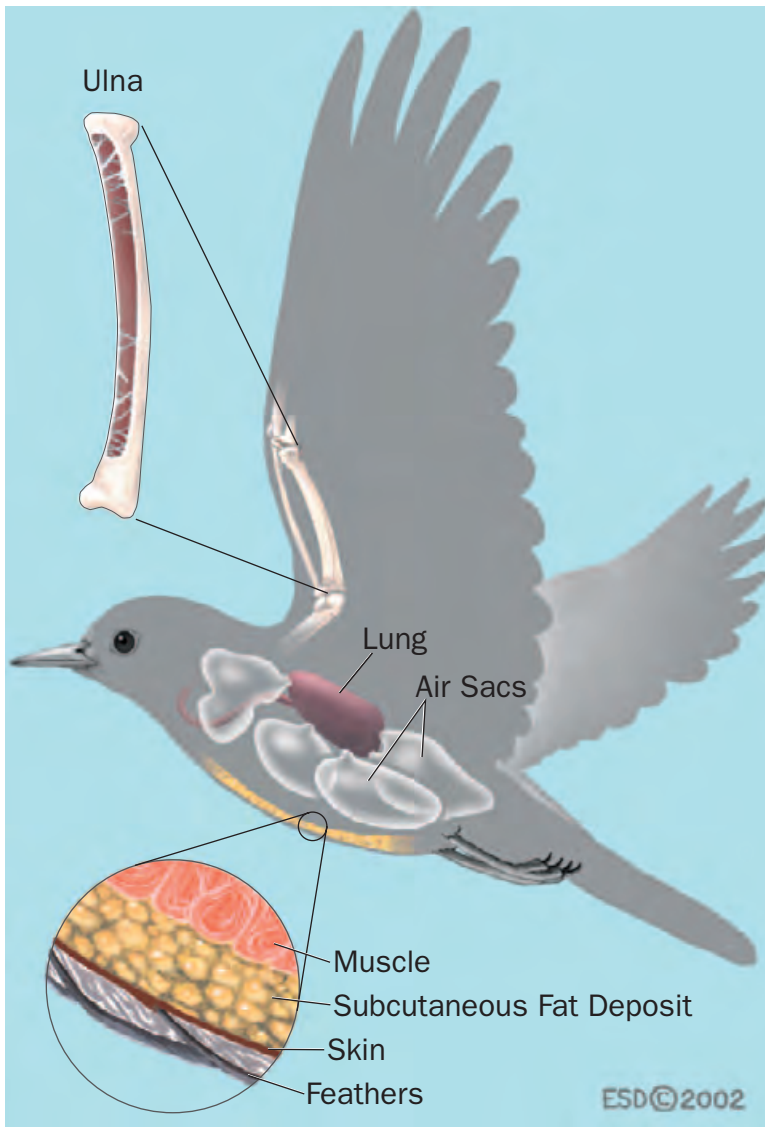
A bird's eyes are big and are usually set on the sides of its head. The eyes focus independently, so that the bird sees two different things at the same time. This gives the bird a very wide view and helps it to watch for predators in most directions. Most birds cannot roll their eyes, but they can turn their heads farther around than mammals can. Owls and other birds of prey have forward-facing eyes that usually work together. This helps them judge distance as they swoop down on prey.

Hearing

Birds have a good sense of hearing—they can hear about as well as mammals. The sound goes in through a little opening near each eye. The holes are usually covered with feathers. They lead to the bird's middle and inner ear, which are very sensitive to sounds. Because owls hunt at night, hearing is especially important to them. Some owls have a disc of stiff feathers on the face. The disc catches sounds, such as the squeaks of a mouse, and leads them to the ears.

Touch

Birds have many nerve endings, which shows that they have a good sense of touch. They can also feel pain, hot, and cold.



Birds' bodies have adaptations for flight, including air sacs in the chest and hollow bones to keep them light, and strong chest muscles. (Illustration by Emily Damstra. Reproduced by permission.)

Some long-billed birds have very sensitive bills and can feel their prey in muddy water.

Smell and taste

Most birds' sense of smell seems to be poorly developed. But kiwis, turkey vultures, and several other birds are able to find food by sniffing it. Although birds do not have many taste buds on their tongues, they can often taste well enough to avoid eating harmful foods.

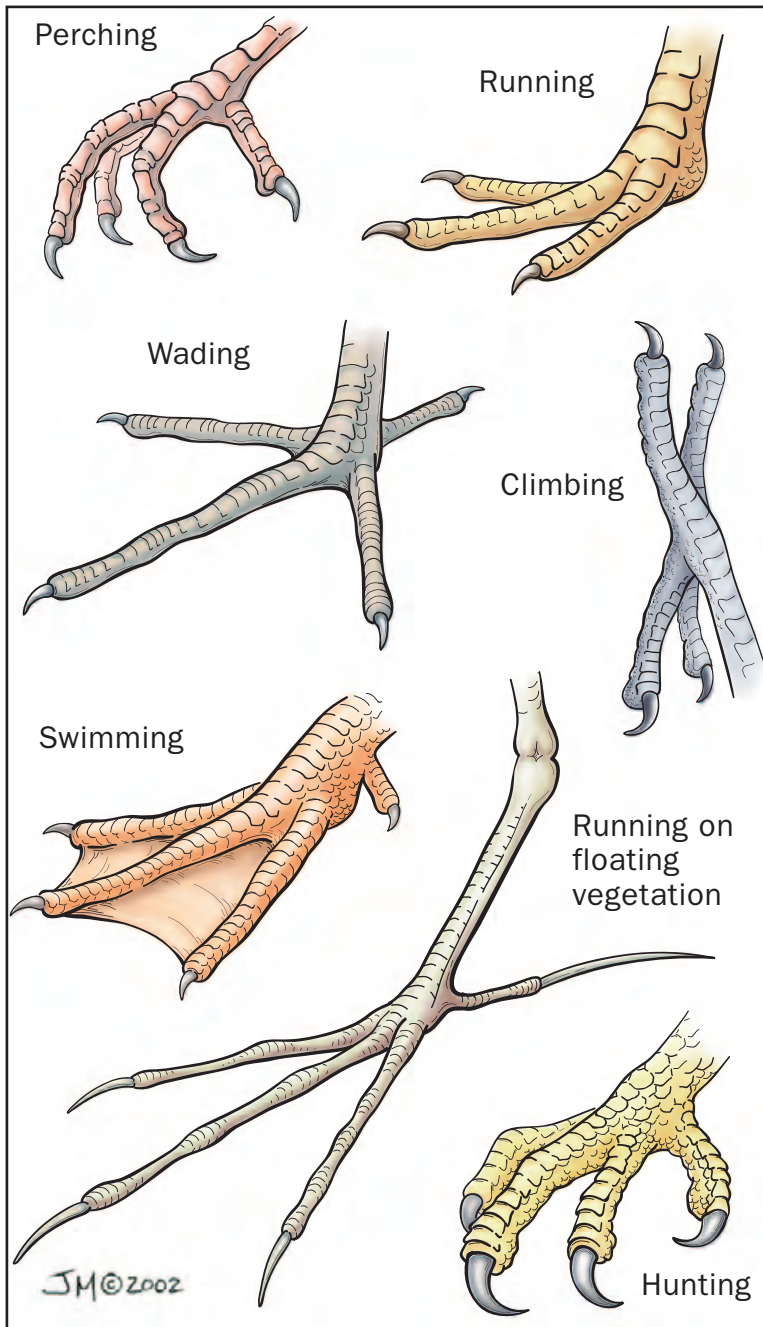


Bills are different shapes and sizes for different eating methods: 1. The greater flamingo filters microorganisms from water; 2. A peregrine falcon tears its prey; 3. Roseate spoonbills sift water for fish; 4. The Dalmatian pelican scoops fish in its pouch; 5. Anna's hummingbird sips nectar; 6. The brown kiwi probes the soil for invertebrates; 7. The green woodhoopoe probes bark for insects; 8. Rufous flycatchers catch insects; 9. Java sparrows eat seeds; 10. Papuan frogmouths catch insects; 11. The bicornis hornbill eats fruit; 12. American anhingas spear fish; 13. Rainbow lorikeets crack nuts. (Illustration by Jacqueline Mahannah. Reproduced by permission.)

WHAT'S INSIDE?

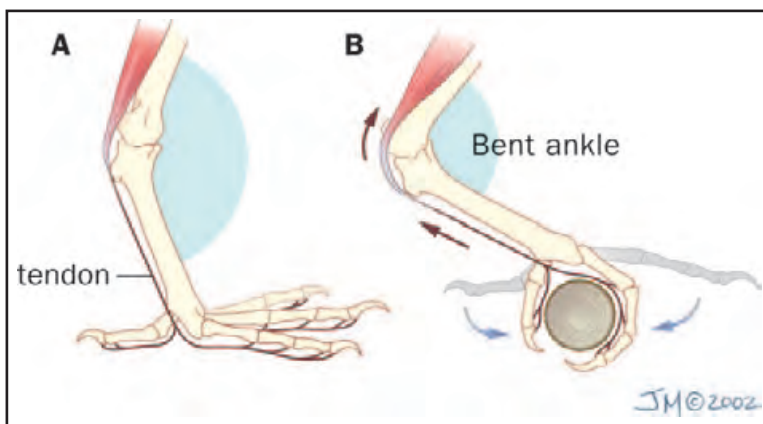
Organs and muscles

Birds have many of the same organs that humans have, but they have special features that help with flight and keep them light. Their biggest, strongest muscles control their wings. Birds



The number of toes, and the arrangement of their toes and feet fit birds' different lifestyles. (Illustration by Jacqueline Mahannah. Reproduced by permission.)

When a bird perches, its ankle bends and contracts (pulls together) the tendons in its foot, forcing its foot to close around the perch (B).
(Illustration by Jacqueline Mahannah. Reproduced by permission.)



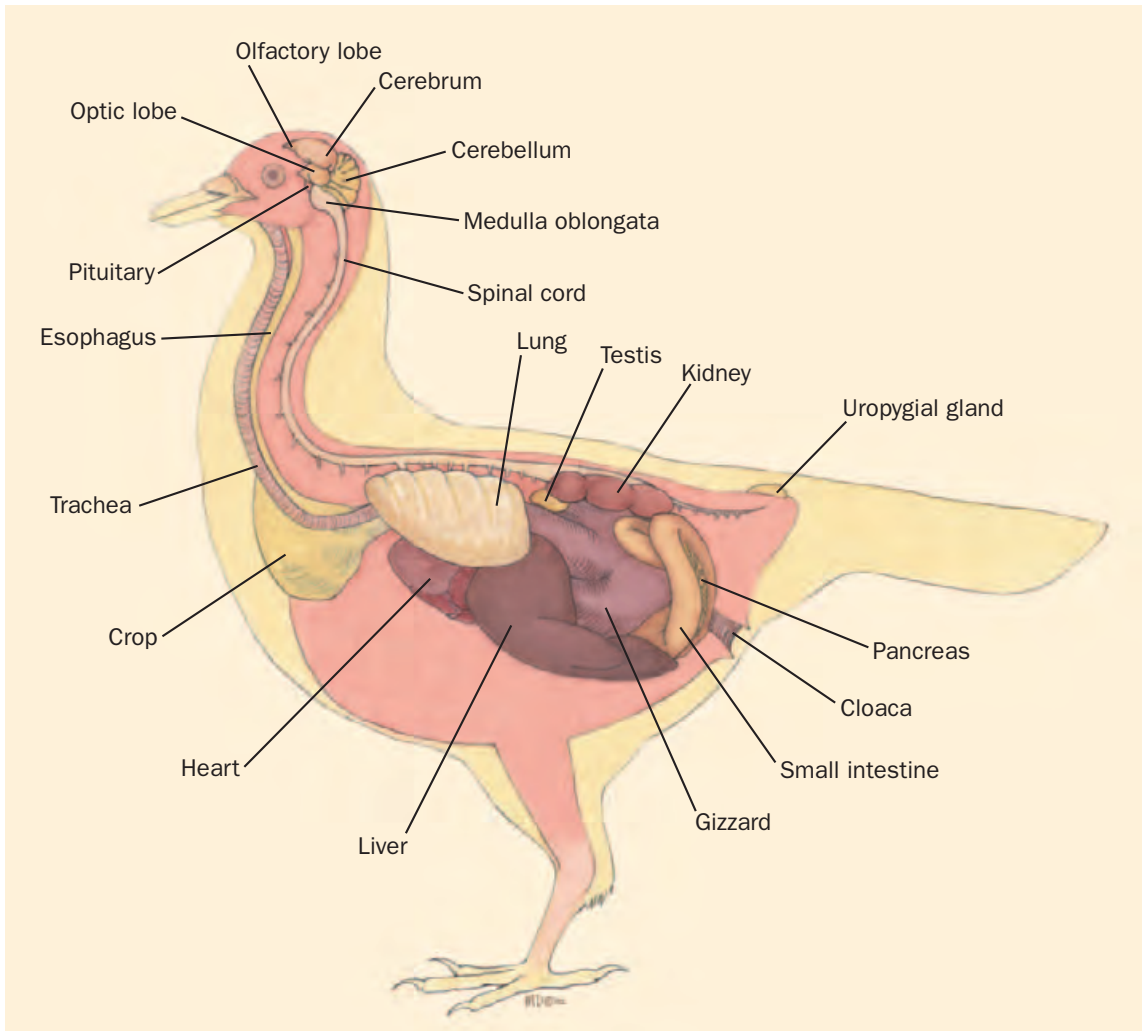
do not have a heavy jaw with teeth to grind their food. Instead, it is ground up in a muscular stomach called a gizzard, and they swallow gravel to help with the grinding. To get the energy they need for flight, birds digest their food quickly. Their fast digestion also keeps them from being weighed down for long by the food they have eaten.

Skeleton

A birds' skeleton is strong, even though it light. Many of the bones are hollow, and some of them are joined together to give the skeleton extra strength. (Loons and other diving birds have some solid bones to help the birds sink in the water.) The breastbone, or sternum, of a flying bird has a part called the keel. The bird's big flight muscles are attached to the keel. What looks like a backward-bending knee on a bird is really its ankle. The bird's knee is hidden high up inside its body feathers.

Body temperature

Birds are warm-blooded, which means their bodies stay at an even temperature no matter how warm or cold it is outside. They make their own heat from the food that they eat. Some birds cope with cold weather by growing extra feathers or a layer of fat, fluffing their feathers to trap more air, and huddling together with other birds. When birds can't find enough food to keep warm, they fly to warmer places. In hot weather, they cool down by panting, swimming in cool water, sitting in the shade, and raising their wings to catch a breeze.

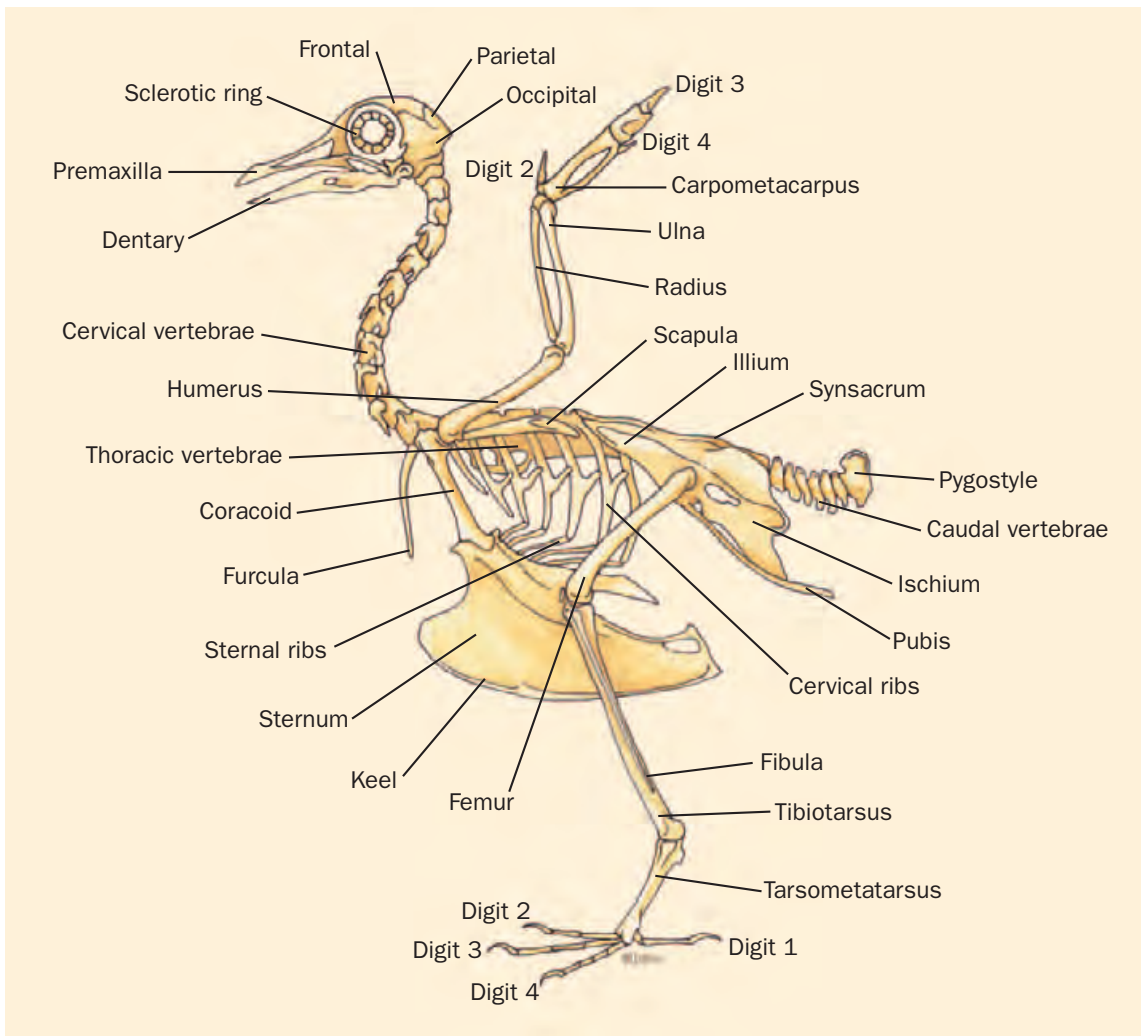


FAMILY LIFE

Singing

Singing is one of the most important ways that songbirds communicate. Birds do not sing just because they are happy. Instead, a male songbird sings to say that he “owns” a certain territory, and he warns birds of the same species to stay away. Songbirds do not have to see each other to know who is nearby. Birds can recognize the songs of their neighbors, because each bird of the same species sounds a little different. Male birds show off to females by singing the most complicated songs they can. Often the best singers are the strongest, healthiest males.

Though birds may look different on the outside, they have the same organs on the inside. (Illustration by Marguette Dongvillo. Reproduced by permission.)

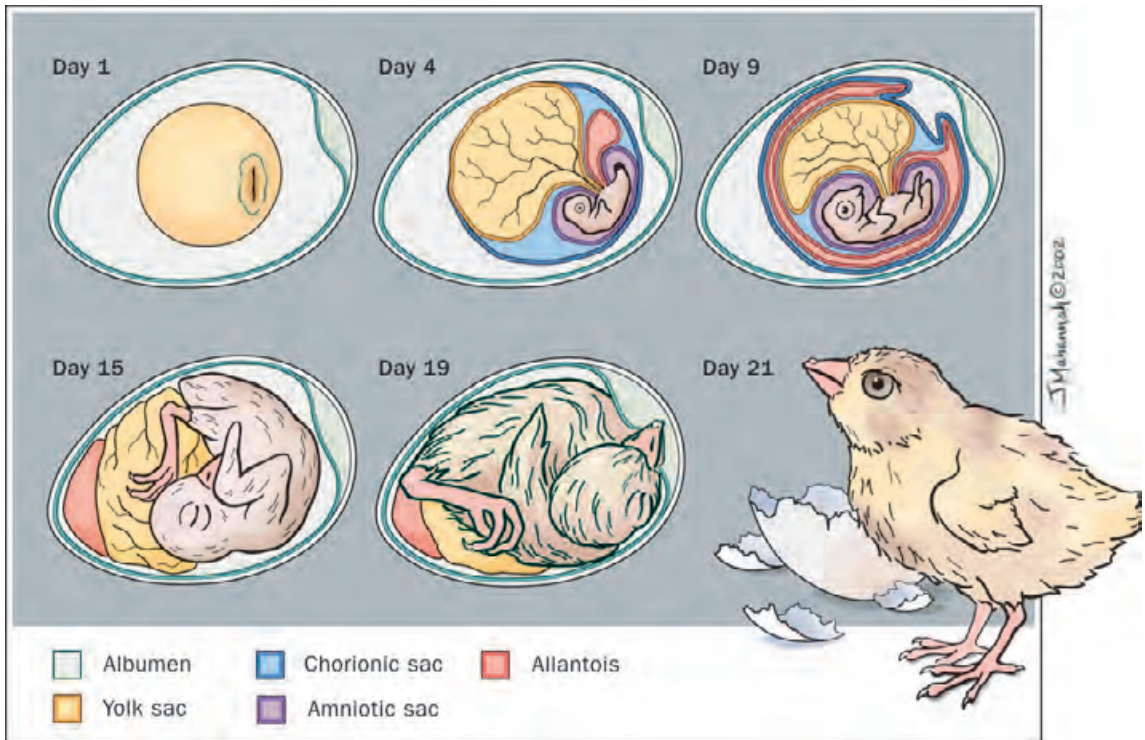


Birds have a strong, light skeleton. (Illustration by Marguette Dongvillo. Reproduced by permission.)

When a female songbird hears her mate singing, her brain tells her body to make hormones (special chemicals). These hormones make eggs start to grow inside her body.

Other ways birds communicate

Singing is just one of the many ways that birds communicate with each other. They have warning calls that tell other birds that a predator is nearby. They chirp to say, "I am here, where are you?" And young birds sometimes beg noisily to be fed. At breeding time, birds have a variety of courtships displays that ask, "Will you be mine?" and state, "We belong together." These include bowing, flight displays, and calling together. Male birds



parade and show off bright feathers or blow up colorful throat sacs to impress females.

Nests

When a bird has found a mate, it is nest-building time. Birds lay their hard-shelled eggs where they can be protected from predators and rain. There are many different kinds of nests. Some birds lay their eggs right on the ground or on the sides of cliffs, some use tree holes or burrows, and some weave complicated stick nests. A few kinds of birds even bury their eggs in mounds of soil and leaves.

Eggs and hatching

Eggs come in many different sizes and colors. Those laid on the ground usually have camouflage colors, and eggs laid in hidden places are often white. The female bird usually incubates the eggs (keeps them warm), especially if she has duller, harder-to-see feathers than the male. Sometimes males and females take turns, and occasionally the males incubate by themselves. Some birds, such as cowbirds, lay their eggs in the nests of other bird species and let the other birds incubate them.

An egg is a perfect package for the chick developing inside it. The albumen (egg white) and yolk provide all the food and water it needs, and are used up as the bird develops. Air moves in and out through hundreds of tiny holes in the shell. Waste from the developing chick is stored in a sac called the allantois (uh-LAN-tuh-wus). The chorionic (kor-ee-AHN-ik) sac lines the inside of the shell, and the amniotic sac surrounds the chick. Time spent in the egg is different for each species, but for this chick, feathers have started to grow by Day 15, and the chick begins making noises by Day 19. There is a little egg tooth on the tip of the chick's bill that it uses to break out of the shell on Day 21. (Illustration by Jacqueline Mahannah. Reproduced by permission.)

Growth of young birds

There are two main types of newly hatched birds. Young chickens, ducks, geese, turkeys, and ostriches are precocial (pre-KOH-shul). Precocial chicks are covered with down feathers and can run or swim after their parents soon after hatching. Before long, they learn to find their own food, but the parents usually protect them for a while longer. Altricial (al-TRISH-ul) birds are helpless when they hatch. Songbirds, seabirds, owls, parrots, and woodpeckers are some of the altricial birds. They are naked, blind, and weak, and they need to be fed by adults at least until they leave the nest.

HABITATS, HABITS, AND PEOPLE

Surviving in a habitat

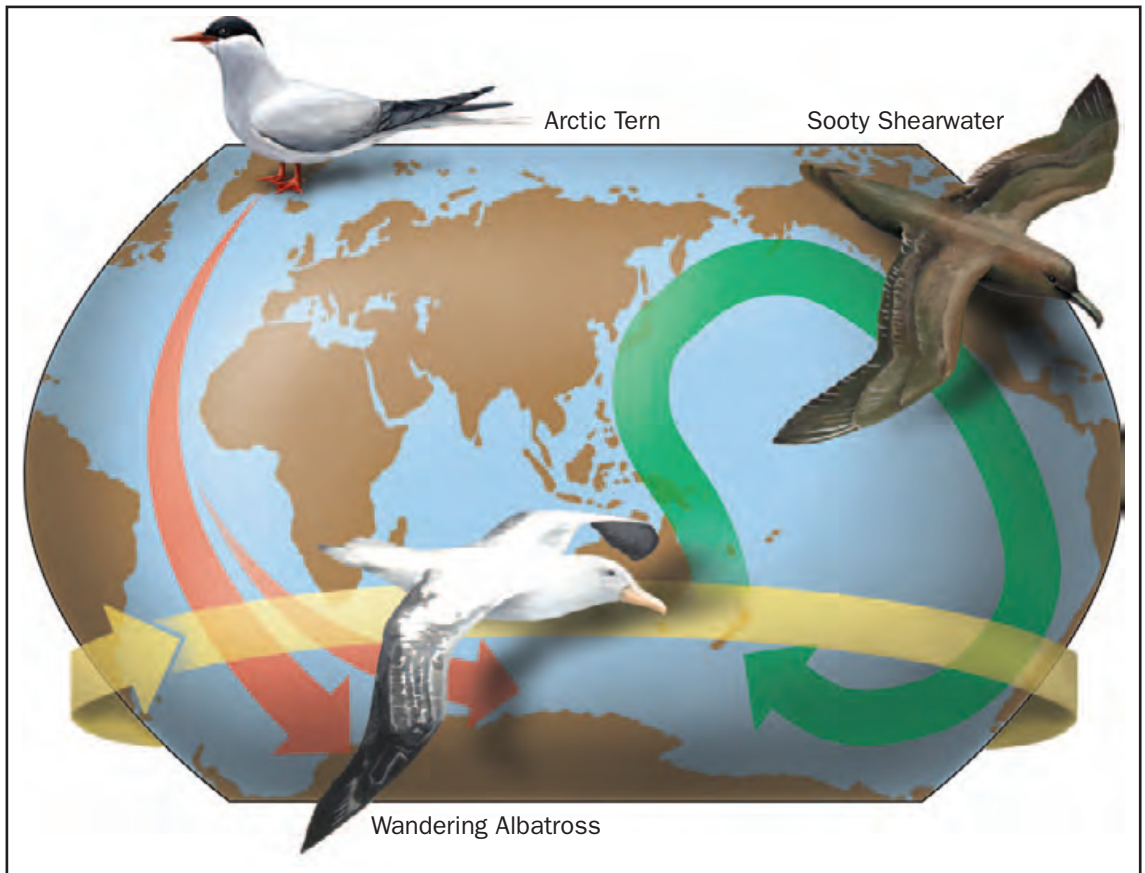
In order to live in a habitat, birds need food, water, and shelter (such as a hedge to hide in). At breeding time, they also need a place to raise their young. Many different kinds of birds can live in the same habitat because they eat different foods and nest in different places. Some birds, such as crows, can often adapt to changes in their habitat, but other birds are very particular and have to leave if something changes.

Staying alive and keeping fit

Birds have to have their feathers in flying shape at all times so that they can escape predators. Well-cared-for feathers are also necessary for keeping the birds warm and waterproof. Birds often have to stop what they are doing and take time out to fix their messed-up feathers. Sometimes they start with a bath. But they always finish by preening. To preen, the birds nibble along each feather to remove dirt and tiny pests. Most birds also get oil on their beaks from a gland near their tails. They spread the oil on each feather and straighten it by zipping it through their beaks. The oil keeps the feathers from drying out and waterproofs them. When a feather gets too worn, it either falls out or gets pushed out by a new feather growing in its place.

Migration

Migration is one way birds cope with natural changes in their habitats. When the weather gets cold and insects get scarce in fall, for example, insect-eating birds fly to warmer places where



they will be able to find the food they need. Their bodies are programmed to tell them that when the days start getting shorter, they have to eat more so they will have enough fuel for the journey. They follow the same migration routes year after year, and they know the general direction they should go and where to stop. The migrating birds are guided by the stars and by the direction the sun moves across the sky. Birds have a built-in compass and are able to follow magnetic fields in the earth. Some birds also rely on landmarks such as rivers and mountains to follow, and some may use sounds and smells to help them find their way.

Birds and people

Birds are some of the most visible wild animals on Earth, and they play an important part in people's lives. Humans

Seabirds have some of the longest migrations. The arctic tern migrates about 25,000 miles (40,000 kilometers) round-trip each year. The sooty shearwater breeds around New Zealand and the southern tip of South America and migrates in the spring to the northern Pacific and Atlantic Oceans. The wandering albatross moves around the Earth from west to east over the oceans south of the tips of the southern continents. (Illustration by Emily Damstra. Reproduced by permission.)

learned about flight from birds, they eat birds and their eggs, and they keep birds as pets. They appreciate the way birds eat insect pests and weed seeds, and they enjoy watching and listening to birds. Sometimes people kill the birds that eat fish or destroy their crops. People have also harmed birds unintentionally by polluting their habitats or turning them into farms and cities.

Humans now take the disappearance of birds from an area as a warning—there may be harmful poisons in the air or water. Many people are working hard to preserve natural places for birds and all wild animals. They are also having some success with fixing habitats that have been destroyed, but fixing them is much harder than preserving them in the first place.

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order

CHAPTER

TINAMOUS AND RATITES

Struthioniformes

Class: Aves

Order: Struthioniformes

Number of families: 6 families

PHYSICAL CHARACTERISTICS

Struthioniformes are divided into two groups: ratites (RAT-ites), which are flightless birds that have a flat breastbone rather than a keeled breastbone (shaped like a wishbone) like birds of flight; and tinamous (TIN-ah-mooz), which have a keeled breastbone and can fly. Ratites have a simplified wing bone structure, strong legs, and no feather vanes, making it unnecessary to oil the feathers. Consequently, they have no preen gland that contains preening oil. This group is composed of ostriches (Struthionidae), rhea (Rheidae), cassowaries (Casuariidae), emus (Dromaiidae), and kiwis (Apterygidae).

Ratite sizes range from 10 inches (25 centimeters) to 9 feet (2.7 meters) and weight can be from 2.86 pounds (1.3 kilograms) to 345 pounds (155.25 kilograms).

Ostriches are the largest struthioniforms (members of the Struthioniformes order), with long legs and neck. They range in height from 5.7 to 9 feet (1.8 to 2.7 meters) and weigh from 139 to 345 pounds (63 to 157 kilograms). They have loose-feathered wings. Males have black and white feathers while the female has grayish brown feathers.

Emus are about 6.5 feet in height and weigh 51 to 120 pounds (23 to 55 kilograms). They have long, strong legs and can run up to 30 miles per hour (48 kilometers per hour). They have short wings and the adults have brown feathers.

Rheas are 4.5 to 5.6 feet (1.3 to 1.7 meters) and weigh 55 to 88 pounds (24.75 to 40 kilograms). Their feathers are gray or spotted brown and white.

phylum

class

subclass

● **order**

monotypic order

suborder

family

Cassowaries are 3.3 to 5.6 feet (1 to 1.7 meters) in height and weigh 30 to 130 pounds (14 to 59 kilograms). They have tiny wings with black feathers.

Kiwis are the smallest of ratites, ranging in height from 14 to 22 inches (35 to 55 centimeters) and weight 2.6 to 8.6 pounds (1.2 to 3.9 kilograms). They have brown and black hair-like feathers.

The tinamous have a keeled breastbone (shaped like a wish-bone) and can fly. They range in size from 8 to 21 inches (20 to 53 centimeters) and weigh 1.4 ounces to 5 pounds (43 grams to 2.3 kilograms).

GEOGRAPHIC RANGE

Ostriches are found in parts of central and southern Africa. Emus are distributed in several small areas of Australia. Kiwis are found in New Zealand. Rheas are distributed in Argentina, Bolivia, Brazil, Chile, Paraguay, and Uruguay. Cassowaries are found in northern Australia, New Guinea, and surrounding islands. Tinamous are found in southern Mexico and throughout Central and South America.

HABITAT

Habitat varies between families. Ratites live in grasslands, eucalyptus forests, woodlands, alpine plains, subtropical and temperate forests, coastal areas, shrubland, desert, and rainforests. Tinamous live in rainforests, deciduous forests, woodlands, grasslands, and croplands.

DIET

Largely herbivores (plant eaters), ratites and tinamous eat mostly plants, fruits, seeds, and flowers although several families also eat insects, snails, and earthworms.

BEHAVIOR AND REPRODUCTION

Ratites and tinamous are diurnal, meaning they are most active during the day. The exception is the kiwi, which is nocturnal, meaning it is most active at night. Behavior and reproduction varies between families. All lay eggs in nests but there the similarities end. In tinamous, rheas, cassowaries, kiwis, and emus, the males incubate (sit on to keep warm) the eggs and raise the young chicks. In ostriches, the males sit on the eggs at night and the females during the day.

Ostriches are the largest living birds and live in flocks, families, and individually. They are diurnal, meaning that they are most active during the day. Ostriches can run at speeds of up to 45 miles per hour (70 kilometers per hour). Males are polygamous (puh-LIH-guh-mus), meaning they take more than one mate at a time. Ostriches have an average of thirteen eggs per nest, and a number of females will lay their eggs in a single nest. The eggs take about forty-two days to hatch. On average, only one chick per nest will survive to adulthood.

Emus are the largest bird native to Australia. They live in pairs and are nomadic, following the rain to feed. The female lays a large, thick-shelled, dark green egg. When a nest has about eight to ten eggs, the male incubates them, meaning he sits on the eggs to keep them warm until they hatch.

Kiwis are shy, night birds with a keen sense of smell. They pair up for life and are monogamous (muh-NAH-guh-mus), meaning they have a sexual relationship with only one partner. The female usually digs a nest in the ground where she lays one or two large eggs, weighing about 1 pound (0.45 kilogram) each.

Rheas are the largest birds in South America. They are polygamous. During breeding season, the male rhea builds a nest in which between two and fifteen females lay their eggs. Nests contain ten to sixty eggs. The male cares for the chicks for about thirty-six hours after they hatch.

Cassowaries are solitary birds except during mating and the egg-laying period. Although they do not fly, they are good swimmers and fast runners. The female lays three to eight large dark bright green eggs in a nest that is incubated by the male. He cares for the chicks for nine months after they hatch.

Tinamous are one of the oldest families of birds. They are very shy and are rarely seen by humans. The male builds a nest and two or more females lay eggs in it. The male incubates the eggs and soon after they hatch and leave the nest, he signals for new females to lay eggs.



BIG BIRD

A ratite known as the elephant bird (family Aepyornithidae) of Madagascar was the largest bird known to exist. It reached a height of 10 feet (3 meters) and weighed up to 880 pounds (400 kilograms). Seven species of the elephant bird once existed and two survived into the first century. All are now extinct. The last species to survive was *Aepyornis maximus*, which became extinct around the year 1600 C.E. One egg of the elephant bird was so large it would take 150 chicken eggs to fill it.

TINAMOUS, RATITES, AND PEOPLE

Ratites are raised by humans for their meat and feathers. Their eggs are used as food and as decoration. Tinamous are hunted in the wild by humans for their meat.

CONSERVATION STATUS

Two Struthioniformes species are listed by the World Conservation Union (IUCN) as Critically Endangered, facing an extremely high risk of extinction. Nine species are listed by as Vulnerable, facing a high risk of extinction. One species is Endangered, facing a very high risk of extinction and four species are listed as Near Threatened, in danger of becoming threatened.

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family CHAPTER

TINAMOUS Tinamidae

Class: Aves

Order: Struthioniformes

Family: Tinamidae

Number of species: 47 species

PHYSICAL CHARACTERISTICS

Tinamous (TIN-ah-mooz) range in size from 8 to 21 inches (20 to 53 centimeters) and weight from 1.4 ounces to 5 pounds (43 grams to 2.3 kilograms). They have a compact body, thin neck, a small head with a beak that curves slightly downward, short wings and tail, and fly infrequently. They have thick, medium-length legs with three toes pointing forward and one pointing backward. They also have a preen gland that secretes an oil they use for grooming.

Tinamous are various shades of gray or brown, with streaky, barred, or mottled patterns. Their coloring is cryptic, meaning it helps them blend in with their surroundings. This makes them harder to be detected by predators, including humans, foxes, armadillos, and skunks. Females are generally larger than males and have somewhat brighter feather coloring.

GEOGRAPHIC RANGE

Tinamous are found in southern Mexico and throughout Central and South America, including Argentina, Bolivia, Brazil, Belize, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guyana, Guatemala, French Guiana, Honduras, Nicaragua, Panama, Paraguay, Peru, Surinam, Uruguay, and Venezuela.

HABITAT

Tinamous occupy a wide variety of habitats. Some species live in tropical rainforests, others in bush woodlands and the edges of forests. Several live in arid or semiarid grass-covered

phylum

class

subclass

order

monotypic order

suborder

▲ family

treeless plains or grasslands. Several species live in the alpine tundra of the Andes Mountains.

DIET

Tinamous eat a mostly herbivorous (consists of plants) diet consisting of seeds, roots, fruits, berries, tender leaves, and flowers. They also on occasion will eat insects and their larvae (LAR-vee), spiders, termites, ticks, worms, snails, and slugs. Several species will eat small vertebrate animals, those with a backbone, such as lizards, frogs, and mice.

BEHAVIOR AND REPRODUCTION

Tinamous are one of the oldest families of birds. They are diurnal, meaning they are most active during the day. They are very shy and are rarely seen by humans. When approached, they hide in ground cover or heavy brush. Although they can fly, they rarely do, preferring to spend most of their time on the ground. They walk and run quickly. Most species roost, or sleep, on the ground, although a few sleep in trees.

When a tinamou feels threatened, it will stand or crouch motionlessly, or walk into heavy brush. When frightened, they will beat their wings and make a loud crowing or barking noise. As a last resort, they will fly low and for a short distance.

Most tinamous are polygamous (puh-LIH-guh-mus), meaning they take more than one mate during a breeding season. The exception is the ornate tinamou, of which a single male and female pair off. For some species, the breeding season is year-round. For others, it is only during a four-month time period each year. At the start of the breeding season, a male will establish its territory and build a nest by digging a shallow hole in the ground, usually among trees or grasses.

The male will call out to attract females. Usually, two or more females will respond and lay eggs in the nest. The male incubates (keeps warm until hatching) the eggs for seventeen to twenty-one days. A few days after they hatch, the chicks leave the nest and the male signals for new females to lay eggs. Tinamou eggs are among the most beautiful of all birds, coming in a variety of deep, shiny, solid colors, including red, brown, black, gray, olive, purple, sky blue, and bright green.

Nesting habits are not uniform among tinamou. The male variegated tinamou incubates a single egg while the male ornate tinamou incubates four to nine eggs from a single female.

The ornate tinamou female aggressively defends the breeding territory, a task done by males in other tinamou species.

The two most common species of tinamou are the variegated tinamou and the crested tinamou (also commonly known as the elegant crested or Martineta tinamou). They live throughout the open grasslands, or pampas, of South America. The Chilean tinamou lives in the tundra-like areas of the southern Andes Mountains in southern South America. It was introduced to Easter Island in the South Pacific in the late nineteenth century, where it still thrives today.

Tinamous were imported into Europe and Canada in the early 1900s and raised as game birds, but domestication was not successful.

TINAMOUS AND PEOPLE

Tinamous are hunted by humans for their meat, which is said to be tender and flavorful. Because of this excessive hunting, coupled with destruction of its habitat, tinamou populations are declining.

CONSERVATION STATUS

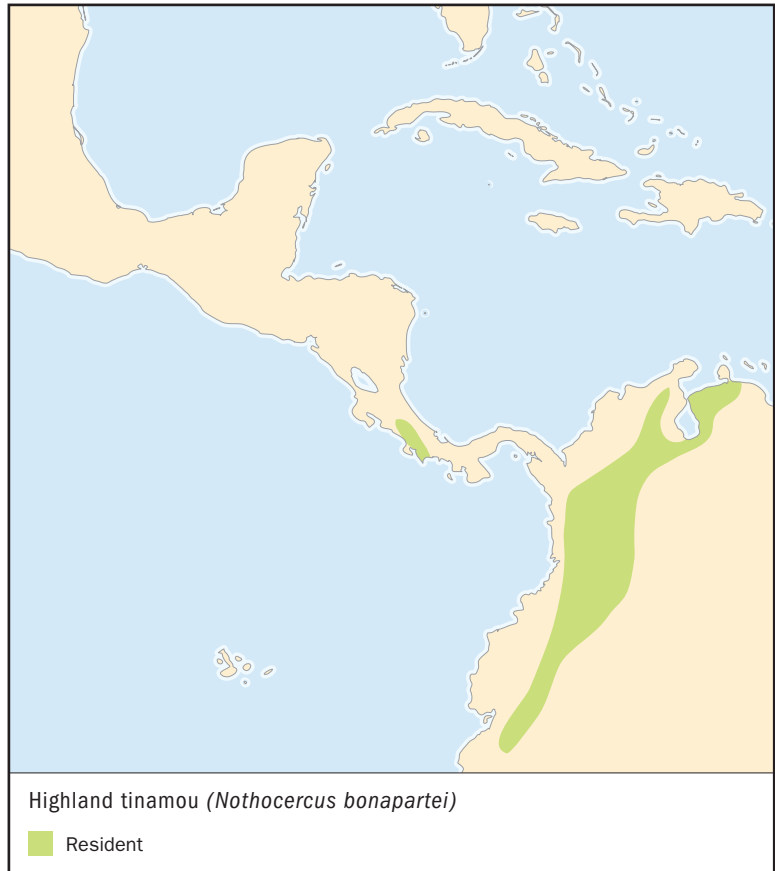
Two species of tinamou are listed by the World Conservation Union (IUCN) as Critically Endangered, facing an extremely high risk of extinction: the Magdalena tinamou and Kalinowski's tinamou. Four species are listed as Vulnerable, facing a high risk of extinction: the black tinamou, dwarf tinamou, Taczanowski's tinamou, and Choco tinamou. Four species are listed as Near Threatened, in danger of becoming threatened: the solitary tinamou, pale-browed tinamou, yellow-legged tinamou, and Colombian tinamou.



HATES TO FLY

The closest living relatives to tinamous are ratites, a group of flightless birds that includes the ostrich. Tinamous have small wings and can make only short flights. Their tail, important in steering while flying, is extremely short. This causes them to often lose control on takeoff and fly into obstacles. They only fly when they feel they are in immediate danger.

SPECIES ACCOUNT



HIGHLAND TINAMOU *Nothocercus bonapartei*

Physical characteristics: The highland tinamou is 15 inches (38.5 centimeters) long and weighs 2 pounds (0.9 kilograms). Its coloring is mottled (spotted) or barred with black and cinnamon on its back and wings. Its throat is usually rust-colored.

Geographic range: Highland tinamous live in Colombia, Costa Rica, Ecuador, Panama, Peru, and Venezuela.

Habitat: This tinamou lives in tropical and subtropical rainforests, usually above 5,000 feet (1,500 meters). The highland tinamou prefers wet areas, especially ones with bamboo thickets.



The male highland tinamou sits on the eggs until they hatch. (Michael P.L. Fogden/Bruce Coleman Inc. Reproduced by permission.)

Diet: The highland tinamou eats mainly fruits and small animals and reptiles, such as lizards, frogs, and mice.

Behavior and reproduction: The male highland tinamou makes a rough and hollow-sounding crowing or barking call that can be heard for several miles (several kilometers). He makes the sound repeatedly while in his home territory. The male defends his territory and attracts a harem of three females with his calls. He builds a nest in dense vegetation where the females each lay three eggs. The male sits on the nine eggs until they hatch. He usually leaves the nest no more than once a day to look for food.

Highland tinamous and people: The highland tinamou is hunted by humans for its meat. As a result, populations are declining in Peru and Costa Rica.

Conservation status: The highland tinamou is not considered threatened by the IUCN. ■

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family CHAPTER

RHEAS Rheidae

Class: Aves

Order: Struthioniformes

Family: Rheidae

Number of species: 2 species

PHYSICAL CHARACTERISTICS

Rheas are similar in general appearance to the ostrich, except for the fact that they are smaller and do not have the large tail feather plumes of ostriches. Rheas are 4.5 to 5.6 feet (1.3 to 1.7 meters) tall from their feet to the top of their back and weigh 55 to 88 pounds (24.75 to 40 kilograms). Their head, neck, and bodies are covered with soft, loose feathers that are gray or spotted brown and white.

They have long legs with three toes and wings with a claw on the end, an effective weapon against predators. Males are larger than females and the lesser rhea is smaller than the greater rhea.

GEOGRAPHIC RANGE

Rheas are distributed in Argentina, Bolivia, Brazil, Chile, Paraguay, and Uruguay.

HABITAT

Rheas live almost exclusively on grassland although two subspecies of the lesser rhea also inhabit desert areas.

DIET

Rheas are omnivores, meaning that they eat both plants and meat. Their diet consists mainly of grass, leaves, herbs, fruit, and seeds, as well as lizards, insects, and small animals.

phylum

class

subclass

order

monotypic order

suborder

▲ **family**



RED MEAT WITH FEATHERS

Rheas are raised commercially in the United States for their meat. However, although rheas are poultry, their meat is classified as red rather than white. Raw rhea meat is a dark cherry red. After it's cooked, it looks and tastes similar to beef, except it is a little sweeter. Rhea meat is sold as steaks, fillets, medallions (small coin-shaped pieces of meat), roasts, and ground meat. Rhea meat is lower in cholesterol and fat than beef and lower in calories than beef, chicken, and turkey, according to the United States Department of Agriculture (USDA). In 2002, the USDA instituted mandatory inspection of rhea meat in places where the birds are slaughtered.

BEHAVIOR AND REPRODUCTION

Rheas are the largest birds in South America. They are extremely friendly and sociable. In the non-breeding season, the lesser rhea usually live in flocks of five to thirty birds, while the greater rhea live in flocks of ten to one hundred individuals. They are often found grazing alongside herbivorous (plant eating) mammals, such as deer and alpacas. They are fast runners and can reach speeds of up to 37 miles (60 kilometers) per hour, usually running in a zig-zag pattern.

Rheas belong to a group of birds called ratites, which are flightless birds that have a flat breastbone rather than a keeled, or curved breastbone like birds of flight. They have a simplified wing bone structure, strong legs, and no feather vanes, making it unnecessary to oil the feathers.

They are polygamous (puh-LIH-guh-mus), meaning they have more than one mate during the breeding season. During breeding season, the male rhea builds a nest in which between two and fifteen females lay their

eggs. Nests contain ten to sixty eggs. The male cares for the chicks for about thirty-six hours after they hatch.

During the winter, the flocks split into three groups: single adult males, flocks of two to fifteen females, and yearlings two-years-old and younger. Males challenge each other and try to attract females. This behavior intensifies as the spring and summer breeding season approaches.

RHEAS AND PEOPLE

Rheas are hunted in the wild by humans for their meat, skin, and feathers. They are raised commercially on farms in the United States and Canada for their meat. They are considered agricultural pests by farmers because they will eat almost any crop.

CONSERVATION STATUS

The greater rhea and lesser rhea are listed by the IUCN as Near Threatened, meaning they are in danger of becoming threatened. Their populations are declining throughout their range, because much of their habitat is shrinking due to conversion to farmland. The Puna rhea, a subspecies of the lesser rhea, has a total population in the wild of only several hundred.

SPECIES ACCOUNT



LESSER RHEA *Pterocnemia pennata*

Physical characteristics: The lesser rhea is 36 to 39 inches (92 to 100 centimeters) in height and weighs 33 to 55 pounds (15 to 25 kilograms).

Geographic range: Lesser rheas are found in Argentina, Bolivia, Chile, and Peru.

Habitat: Lesser rheas live in the grassy, open high plains of South America.



Diet: Lesser rheas are omnivores, meaning they eat both plants and flesh. They primarily eat grasses, plants, leaves, roots, fruit, and seeds along with insects, lizards and small mammals. They drink little water and get most of the liquid they need from plants. They also swallow pebbles to aid with digestion.

Behavior and reproduction: Lesser rheas are social creatures that usually live in herds of five to thirty individuals. In the spring and summer breeding season, males become territorial by selecting an area of land as their territory and defending it against other males. Females also leave the larger group to congregate in smaller flocks.

The flightless birds are fast runners, capable of reaching speeds of up to 37 miles (60 kilometers) per hour. They are also strong swimmers, capable of crossing rivers. They have excellent eyesight and hearing. They often graze with smaller herbivores and are able to detect predators, animals that hunt them for food, from a long distance, thus alerting the other grazing animals to the danger.

Lesser rheas are polygamous, meaning they have more than one mate during the breeding season. During the spring and summer, the male lesser rhea builds a nest in which between two and fifteen females lay their eggs. Nests contain ten to sixty eggs. The male incubates the eggs

The male lesser rhea sits on the eggs until they hatch, and then cares for the chicks for a few days. (© N.H. [Dan] Cheatham/Photo Researchers, Inc. Reproduced by permission.)

by sitting on them for thirty-five to forty days in order to keep them warm, so that they may later hatch. After the eggs hatch, the male cares for the chicks for a few days. He then leads the chicks away from the nest but they stay in contact through a series of whistles.

Lesser rheas and people: Lesser rheas are hunted in the wild by humans for their meat, skin, and feathers. They are raised commercially on farms in the United States and Canada for their meat. They are viewed with mixed feelings by farmers and ranchers. Farmers consider them agricultural pests because they will eat almost any crop. Cattle ranchers consider them beneficial because they often graze with sheep and eat grasses that have sharp burrs that become entangled in sheep's wool.

Conservation status: The lesser rhea is listed by the World Conservation Union (IUCN) as Near Threatened, because their populations are declining throughout their range. Much of their habitat is shrinking due to conversion to farmland. The Puna rhea, a subspecies of the lesser rhea, has a total population in the wild of only several hundred. ■

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CASSOWARIES

Casuaridae

Class: Aves

Order: Struthioniformes

Family: Casuariidae

Number of species: 3 species

family

CHAPTER

phylum

class

subclass

order

monotypic order

suborder

▲ family

PHYSICAL CHARACTERISTICS

Cassowaries are large, long-legged birds. They range in height from 40 to 67 inches (102 to 170 centimeters and weigh 30 to 130 pounds (14 to 59 kilograms). They have tiny wings with coarse, black feathers.

They belong to a group of birds called ratites, which are flightless birds that have a flat breastbone rather than a keeled breastbone like birds of flight. They have a simplified wing bone structure, strong legs, and no feather vanes, making it unnecessary to oil the feathers. Consequently, unlike most birds they have no preen gland, a gland on the rear of most birds which secretes an oil the birds use in grooming.

Their heads are a brilliant blue and purple color, topped with a casque, or helmet, on the top. They have long, red wattles, folds of unfeathered skin, that hang from the neck, much like those of a turkey.

GEOGRAPHIC RANGE

Cassowaries are found in northern Australia, Papua New Guinea, and surrounding islands.

HABITAT

Cassowaries live in rainforest, ranging from lowland swamp forests to mountainous forests.

DIET

Cassowaries are omnivores, meaning they eat both plants and flesh. Their diet consists mainly of fruit, but they will also

eat lizards, snakes, small marsupials (animals that have a pouch), and other birds.

BEHAVIOR AND REPRODUCTION

Cassowaries are solitary birds except during mating and the egg-laying period. They are normally shy but when threatened, can attack, kicking and slashing victims with their sharp claws. Although they do not fly, they are good swimmers and fast runners.

A male cassowary is territorial, meaning it is protective of an area it considers home and claims exclusively for itself and its mate. A male's territory is approximately 2.8 square miles (7 square kilometers) in size. Females have overlapping ranges belonging to several males.

During the breeding season that starts in May or June, the female lays three to eight large, dark, bright green or greenish blue eggs in a nest that is incubated by the male. The female then moves on to lay eggs in several other males' nests. Incubation lasts from forty seven to sixty one days. The male cares for the chicks for nine months after they hatch.

After about nine months, the young cassowaries leave the nest and the males go off in search of an area they can claim as their own territory. The average lifespan of cassowaries in the wild is believed to be forty to fifty years.

The big birds play a critical role in the health of the rainforest of northern Australia and New Guinea by dispersing the seeds of more than 150 types of trees through their excretions. It is the only way seeds of at least eighty trees get dispersed.

Two species of cassowaries, the dwarf cassowary and the southern cassowary, found in the rainforests of Papua New Guinea, make a very low booming sound, deeper than that of most birds, that can barely be heard by humans.

Scientists believe the sounds are meant to call for a mate or to claim a territory. "Such low frequencies are probably ideal for communication among widely dispersed, solitary cassowaries in dense rainforest," wrote Andrew L. Mack, a scientist with the Wildlife Conservation Society, in the October 2003 issue of the



ATTACK OF THE BIG BIRDS

Cassowaries are considered the most dangerous bird in the world. Though normally shy, when cornered or threatened, the cassowary will lash out, charging their victim, kicking and slashing with their razor-sharp claws. In 1999 there were 144 documented cassowary attacks on humans in Australia, six causing serious injury. There were also cassowary attacks on dogs, horses, and one cow. The last reported death from a cassowary attack occurred in 1926 when a sixteen-year-old boy was killed by a single kick to the neck after hitting the bird with a stick.

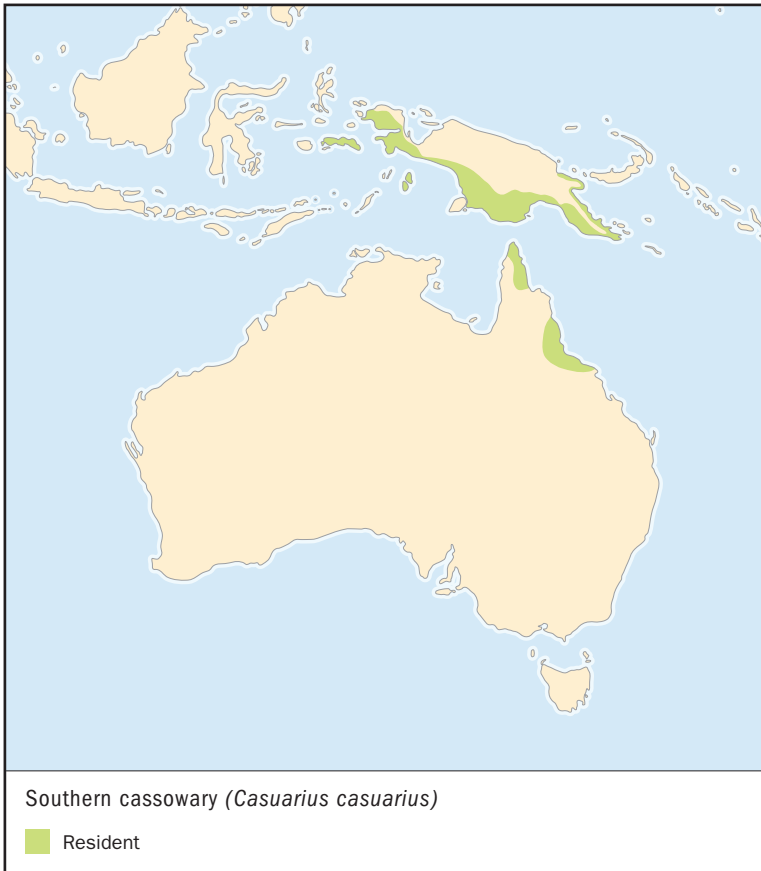
scientific journal *The Auk*. “The discovery of very low-frequency communication by cassowaries creates new possibilities for studying those extremely secretive birds and for learning more about the evolution of avian vocalizations.”

CASSOWARIES AND PEOPLE

Humans have hunted Cassowaries for hundreds of years for their meat and feathers. Hunting cassowaries is now illegal in Australia. They do not breed well in captivity and there are only about forty cassowaries in Australian zoos and wildlife parks.

CONSERVATION STATUS

The dwarf cassowary is listed by IUCN as Near Threatened, not currently threatened, but could become so. The southern cassowary and northern cassowary are listed by IUCN as Vulnerable, facing a high risk of extinction in the wild, due to rapidly declining populations. The total number of the three species of cassowary is estimated at 1,500 to 3,000, although several estimates range up to 10,000.



SOUTHERN CASSOWARY

Casuarius casuarius

SPECIES ACCOUNT

Physical characteristics: Southern cassowaries are 50 to 67 inches (127 to 170 centimeters) in length. Females weigh about 128 pounds (58 kilograms) and males weigh 64 to 75 pounds (29 to 34 kilograms). The neck skin is red and blue and the feathers of adults are glossy black. They have two long, red wattles, which are folds of unfeathered skin that hang from the neck.

Geographic range: Southern cassowaries are found in Queensland in two areas of northern Australia: the wet tropics from Mt. Halifax to Cooktown, and on Cape York Peninsula. They also live in Papua New Guinea.



The male southern cassowary cares for his chicks for nine months after they hatch. (Cliff Frith/Bruce Coleman Inc. Reproduced by permission.)

Habitat: They live primarily in lowland rainforests below 3,600 feet (1,100 meters).

Diet: Southern cassowaries are omnivores, meaning they eat both plants and flesh. Their diet consists mainly of fruit but they will also eat flowers, lizards, snakes, snails, small marsupials, and birds.

Behavior and reproduction: During the breeding season in June and July, the female lays one to four lime green eggs in a nest that is incubated by the male. The female then moves on to lay eggs in several other males' nests. Incubation lasts from forty-seven to sixty-one days. The male cares for the chicks for nine months after they hatch.

Southern cassowary and people: Once common throughout its natural range, the southern cassowary is now rarely seen in the wild. In Australia and Papua New Guinea, the southern cassowary is part of the mythology and culture of the indigenous peoples. The birds are still hunted and chicks are captured and raised in pens until they become adults, then slaughtered for meat.

The southern cassowary needs large areas of rainforest to survive and protected areas, such as national parks, are not enough. Conservationists in the two southern cassowary population areas have been using different methods to combat this problem. They have established nurseries to grow rainforest fruit trees that can be replanted in cleared land, as well as forming corridors between two separated habitats.

Conservation status: The southern cassowary is listed by IUCN as Vulnerable due to rapidly declining populations. The Australian government has listed the southern cassowary as an Endangered species. Estimates in Australia place the total population at 1,200 to 1,500 individuals. The populations are declining due to loss of habitat, deaths by vehicles, dogs, wild pigs, and illegal hunting. ■

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EMU

Dromaiidae

Class: Aves

Order: Struthioniformes

Family: Dromaiidae

One species: Emu (*Dromaius novaehollandiae*)

family

CHAPTER

phylum

class

subclass

order

monotypic order

suborder

▲ family

PHYSICAL CHARACTERISTICS

The emu is the largest bird native to Australia and the second largest bird in the world. Emus are 60 to 75 inches (150 to 190 centimeters) in height and weigh 51 to 120 pounds (23 to 55 kilograms). They have long, strong legs and can run up to 30 miles per hour (48 kilometers per hour). They have long necks and short wings. The adults have brown feathers while the chicks are striped with black, brown, and cream-colored feathers. They have heads with blue skin and stiff black hair. Females are slightly larger than males.

Emus belong to a group of birds called ratites (RAT-ites), which are flightless birds that have a flat breastbone rather than a keeled or curved breastbone like birds of flight. They have a simplified wing bone structure, strong legs, and no feather vanes, making it unnecessary for them to oil their feathers. Consequently, they have no preen gland that contains preening oil, unlike most birds.

Emus have long, loose double feathers in which the after-shaft, or the secondary feather that branches from the base of the main feather, is as long as the main feathers.

GEOGRAPHIC RANGE

Emus are found throughout Australia. They are most common in southern Australia although they can be found as far north as the city of Darwin.

HABITAT

Emus live in eucalyptus forests, woodlands, shrublands, desert, sandy plains, grasslands, and high alpine plains.

DIET

Emus are omnivores, meaning they eat both plants and flesh. They prefer plant parts that are rich in nutrients they need, such as seeds, fruits, flowers, and young shoots. They also eat insects, such as grasshoppers, beetles, and caterpillars. More rarely, they will eat lizards, snakes, small rodents, and small marsupials (animals that have a pouch). They usually drink water every day and get some of the liquid they need from plants. They also swallow pebbles to aid with digestion.

BEHAVIOR AND REPRODUCTION

Emus are diurnal, meaning they are most active during the day. They live in pairs and are nomadic, following the rain to feed. They can walk considerable distances at a steady pace of 4.3 miles (7 kilometers) per hour covering 9 feet (270 centimeters) in a single stride. Emus are also strong swimmers.

Emus have adapted well to their Australian environment, where it is often arid and food is not always available in the same place throughout the year. To find food once an existing supply is exhausted, emus sometimes travel hundreds of miles (kilometers) to find a new food source. They have also adapted to the often-harsh Australian environment with their food storage ability. When food is plentiful, emus store large amounts of fat that they live off of while searching for new food supplies. Sometimes, adult emus will lose more than 50% of their weight while in between food supplies, dropping from 100 pounds (45 kilograms) to 44 pounds (20 kilograms.)

Emus are solitary creatures and although they often travel in large flocks, this is not social behavior, rather simply going where there is food. In Western Australia, emu migration runs north in summer and south in winter. In eastern and southern Australia, their wanderings are random. On extremely hot days, emus pant, meaning they open their mouths and breathe very rapidly, much like dogs, using their lungs as evaporative coolers.

Emus have an uncanny and ill-understood way of detecting rain from several hundred miles (kilometers) away. Researchers believe this is a combination of sighting distant rain cloud formations, smelling rain, and hearing the far-off sound of thunder from distances the human ear cannot.

Male and female emus pair up in December and January, establishing a territory of about 12 square miles (30 square kilometers) where they mate. The male builds a nest by placing



bark, grass, twigs, and leaves in a shallow depression in the ground. In April, May, and June, the female lays large, thick-shelled dark green eggs, with one nest containing the eggs of several females. When a nest has about eight to ten eggs, the male incubates them, meaning he sits on the eggs to keep them warm until they hatch. Nests can contain fifteen to twenty eggs on occasion.

From the time the male starts incubating the eggs, he does not eat, drink, or pass bodily wastes. The male survives only on accumulated body fat. He sits on the nest twenty-four hours a day, standing about ten times a day to turn the eggs. The eggs hatch in about fifty-six to sixty days. The chicks remain with the male for five to seven months. The young reach sexual maturity at two to three years of age. The average lifespan of emus in the wild is five to ten years.

EMUS AND PEOPLE

Emus have been roaming Australia for eighty million years, when dinosaurs still walked the Earth. But even though they survived the extinction event that killed the dinosaurs, they came close to being wiped out by humans. In 1901, farmers in Western Australia built a 682-mile (1,100-kilometer) fence to keep emus away from grain crops. But the fence disrupted emu migration and as many as 50,000 birds died each year from starvation.

In 1932, the Australian government literally declared war on the big bird. Army troops with truck-mounted machine guns and hand grenades were used to hunt down and kill emus. The war was short-lived after the army learned the fast-running birds could easily outmaneuver them. Still, it is estimated that hundreds were killed. Emus are now protected by law and the total population in the wild is estimated at 500,000 to one million.

Emus are raised commercially in the United States, Australia, Europe, and South Africa for their meat, skin, eggs, and feathers. Farmers in Australia often consider them agricultural pests. Emu oil is also being studied in the United States for its possible medical applications. It is used as an antiseptic, moisturizer, and anti-inflammatory agent. It is also found in eye creams, hair care products, and other cosmetics. Research indicates that emu oil promotes wound healing and may be effective in treating arthritis. The U.S. Food and Drug Administration has not approved its use for medical conditions.

CONSERVATION STATUS

The emu is not listed as threatened by the IUCN. Two species, the Kangaroo Island emu and the King Island emu, as well as one subspecies, the Tasmanian emu, became extinct in the 1800s due to hunting by humans.



The emu is the largest Australian bird, and is found throughout the continent. (Janis Burger/Bruce Coleman Inc. Reproduced by permission.)

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family CHAPTER

KIWIS Apterygidae

Class: Aves

Order: Struthioniformes

Family: Apterygidae

Number of species: 4 species

PHYSICAL CHARACTERISTICS

Kiwis (KEE-weez) are about the size of a chicken. They range in height from 14 to 22 inches (35 to 55 centimeters) and weigh 2.6 to 8.6 pounds (1.2 to 3.9 kilograms). They have brown and black hair-like feathers, no tail, and four toes.

Kiwis are the smallest of a group of birds called ratites, flightless birds that have a flat breastbone rather than a keeled (curved) breastbone like birds of flight. They have a simplified wing bone structure, strong legs, and no feather vanes, the barbs that make up each feather, making it unnecessary to oil the feathers. Consequently, they have no preen gland, which normally contains preening oil.

GEOGRAPHIC RANGE

Kiwis are found in various locations in New Zealand and on nearby islands, including Stewart Island. The North Island brown kiwi is the most widespread, with an estimated 30,000 in the wild.

HABITAT

Most kiwis prefer subtropical and temperate forests, including coniferous and deciduous forests, grassland, scrubland, and farmland. Two varieties live in the higher elevations, the Stewart Island brown kiwi and great spotted kiwi.

DIET

Kiwis are primarily insectivores, meaning they eat mainly insects. Their diet includes earthworms, beetles, snails, caterpillars,

phylum

class

subclass

order

monotypic order

suborder

▲ family



UNIQUE KIWI PARENTING

Little spotted kiwis have a way of raising their young that is unique among kiwis. The male incubates the eggs for seventy days. Once the chicks hatch, the female helps in the rearing. Adult little spotted kiwis do not feed their young but the males and females escort their chicks into the forest to search for food, mainly berries and worms. With other species, the chicks are left on their own to find food after hatching. The little spotted kiwi is one of the most endangered of all kiwis. Human destruction of their habitat is the primary reason for their decline. Once common on the mainland of New Zealand, only about 1,000 remain off the mainland on Tiritiri Matangi Island, Red Mercury Island, Mana Island, Long Island, Hen Island, and Kapiti Island. They also survive on the Kaori Kiwi Reserve in Wellington as part of the government's captive breeding program.

centipedes, spiders, cockroaches, praying mantises, snails, locusts, crickets, grasshoppers, and insect larvae. They will eat some plant material, such as fallen fruit and berries, but only rarely. Kiwis find most of their food by scent, using the highly sensitive nostrils located at the end of their beak.

BEHAVIOR AND REPRODUCTION

Kiwis are nocturnal, meaning they are most active at night. They live in burrows they dig several weeks before they are used. This allows the regrowth of moss and other vegetation that camouflages (KAM-uh-flaj-uhs) the burrow. A pair of kiwis can have up to one hundred burrows within their established territory, which is generally 61.75 acres (25 hectares) but can be as much as 120 acres (48 hectares).

Kiwis are shy, night birds with a keen sense of smell. They are monogamous, meaning they mate with only one partner. They pair up for at least two or three breeding seasons and sometimes for life. The female usually digs a nest in the ground where she lays one or two large eggs, weighing about 1 pound (0.45 kilograms) each.

KIWIS AND PEOPLE

The kiwi is the national symbol of New Zealand and an important draw for tourists. Its image is found on New Zealand stamps, coins, and corporate logos, including the now-defunct Kiwi Air. It is used to promote a variety of commercial products.

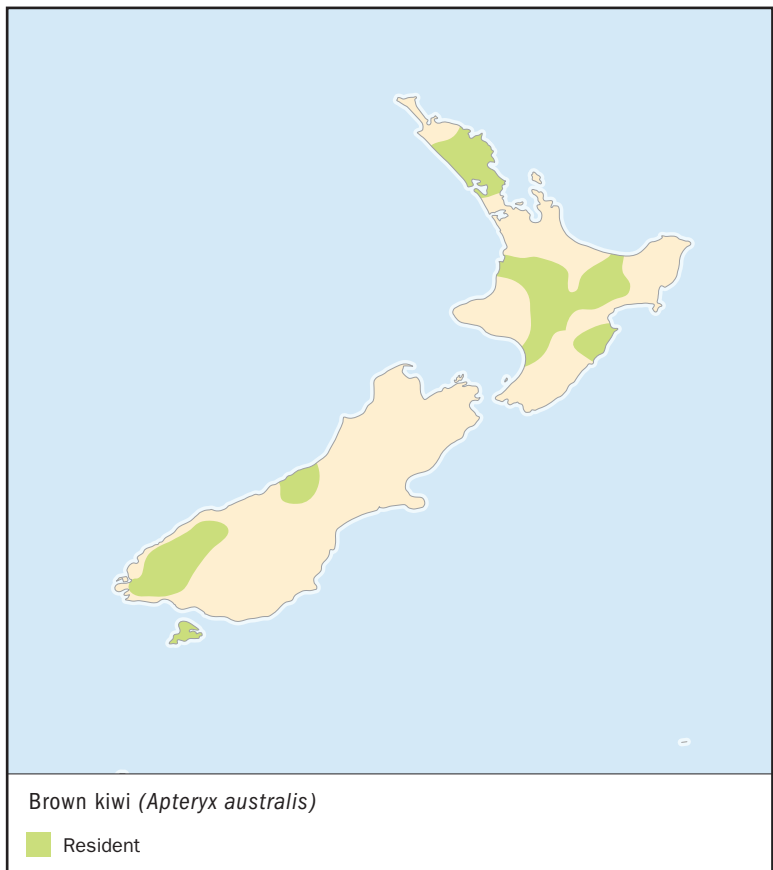
CONSERVATION STATUS

The IUCN lists the brown kiwi as Endangered, facing a very high risk of extinction, and three kiwi species as Vulnerable, facing a high risk of extinction: the little spotted kiwi, great spotted kiwi, and brown kiwi.

About 1,000 years ago, there were an estimated twelve million kiwis in New Zealand. That number dropped to five million by

1930 due to hunting by humans and animals, such as dogs, cats, and stoats, which are small weasels. As of 2004, there are only about 50,000 to 60,000 kiwis left in the wild and that number is dwindling each year. In 1991, the New Zealand government began a kiwi recovery program that includes establishing kiwi sanctuaries.

SPECIES ACCOUNT



BROWN KIWI *Apteryx australis*

Physical characteristics: There are two subspecies (or types) of brown kiwi, the southern tokoeka kiwi, also called the Stewart Island brown kiwi, and Haast tokoeka kiwi, also known as the Haast brown kiwi. The southern variety is larger, with a stout body, powerful claws for digging, and loose brown and black feathers. It has a long beak with nostrils at the end for smelling. The Haast tokoeka kiwi is smaller with a plump, round body and small head with little eyes. It has a long beak that curves slightly downward with nostrils at the end.

Brown kiwis range in size from 18 to 22 inches (45 to 55 centimeters) with females weighing 4.6 to 8.5 pounds (2.1 to

3.9 kilograms) and males weighing 3.6 to 6.1 pounds (1.6 to 2.8 kilograms). They have short wings that end with a claw.

Geographic range: The Haast tokoeka kiwi is found in only a few mountainous areas of North Island New Zealand where the winters are harsh. The southern tokoeka kiwi is found on preserves in Fiordland and Westland on South Island and on Stewart Island.

Habitat: The Haast tokoeka kiwi lives in the coniferous pine forests of North Island while the southern tokoeka kiwi lives in subtropical, temperate, deciduous, and coniferous forests and shrublands.

Diet: Brown kiwis are mainly insectivores, meaning they eat mostly insects. Their diet includes earthworms, beetles, snails, caterpillars, centipedes, spiders, cockroaches, praying mantises, locusts, crickets, grasshoppers, and insect larvae.

Behavior and reproduction: Brown kiwis are nocturnal, meaning they are most active at night. During the day, they sleep in dens or burrows. They are monogamous, meaning they mate with only one partner during one or more breeding seasons. They live in pairs and are territorial, meaning they are protective of an area they consider home and claim exclusively for themselves. A brown kiwi pair's territory ranges from 12 to 106 acres (5 to 43 hectares).

During the breeding season, the female lays one or two eggs in a nest made in thick vegetation. The male incubates the eggs, meaning he sits on them to keep them warm so the embryos inside can develop and hatch. The incubation period is about ninety days.

Brown kiwis and people: The brown kiwi has no economic significance for humans. It is a protected species in New Zealand and the government has established a recovery program for them, including captive breeding and establishing sanctuaries.

Conservation status: The brown kiwi is listed by the IUCN as Vulnerable. There are an estimated 30,000 southern tokoeka kiwis in the wild and only 200 to 300 Haast tokoeka kiwis in a few select areas of New Zealand. ■

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family CHAPTER

OSTRICH Struthionidae

Class: Aves

Order: Struthioniformes

Family: Struthionidae

One species: Ostrich
(*Struthio camelus*)

PHYSICAL CHARACTERISTICS

Ostriches are ratites, flightless birds that have a flat breastbone rather than a keeled or curved breastbone like birds of flight. They have a simple wing bone structure, strong legs, and no feather vanes, making it unnecessary to oil the feathers. Therefore, ostriches have no preen gland that contains preening oil.

Ostriches are the largest birds in the world, with long legs and necks. They range in height from 5.7 to 9 feet (1.8 to 2.8 meters) and weigh from 139 to 345 pounds (63 to 157 kilograms). They have loose-feathered wings. Males have black and white feathers while females have grayish brown feathers. They have powerful legs, each with two toes. One of their two toes has a strong 4-inch (10-centimeter) claw while the other toe is usually clawless.

There are four living subspecies of ostrich: North African, Somali, Masai, and South African. Skin color is usually light but varies among subspecies, including pink in the North African ostrich and blue in the Somali ostrich.

GEOGRAPHIC RANGE

Ostriches are found in parts of central and southern Africa.

HABITAT

Ostriches live in dry, sandy regions of Africa, including grassland, desert, woodlands, shrubland, and savannas, flat grasslands with scattered trees and shrubs.

phylum

class

subclass

order

monotypic order

suborder

▲ **family**



HEADS UP

It is a myth that ostriches, when frightened, will hide their heads in a hole or bury them in the sand. Often, when they feel they are in danger, ostriches will try to escape detection by laying flat on the ground with their necks and heads outstretched. Since the head and neck are usually a light color, they blend in well with the dirt and sand. From a distance, only the body is readily visible and it is believed this behavior gave rise to the myth.

DIET

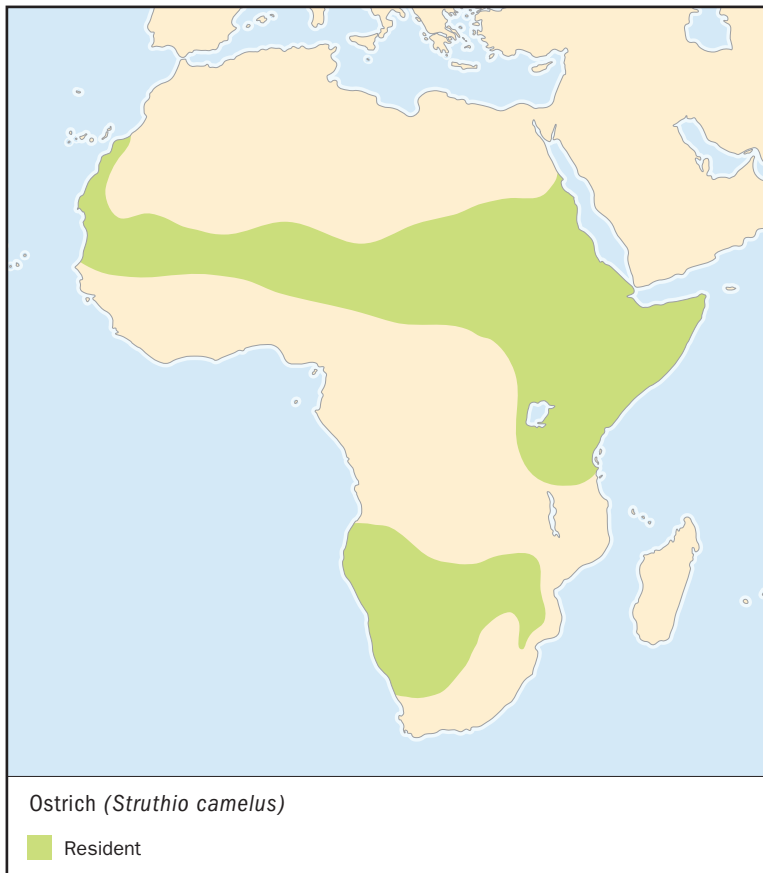
Ostriches are omnivores, meaning they eat both plants and animals. Their primary diet includes grasses, shrubs, seeds, roots, leaves, flowers and sometimes locusts and grasshoppers. However, they will on occasion eat small animals, such as lizards and mice, and animal remains. Ostriches also eat sand and small stones that help grind up food in their digestive systems. Their intestines are 46 feet (14 meters) long, allowing food to remain in their systems a long time in order to absorb a maximum amount of nutrients from their food.

BEHAVIOR AND REPRODUCTION

Ostriches are diurnal, meaning they are most active during the day. They are sometimes active on moonlit nights. They live in flocks, families and alone. The flocks can range in size from five to fifty birds and are usually found grazing with other herbivores, including antelope and zebras. During the breeding season, flocks occupy territories of 0.8 to 6 square miles (2 to 15 square kilometers). Flocks often gather together, forming large groups of hundreds of birds. Outside the breeding season, flocks are usually much smaller, generally two to five birds but sometimes up to ten birds. Male ostriches are called cocks and females are hens.

Ostriches take frequent sand baths, especially during dry periods, laying together in large sandy depressions where they stir up the sand with powerful wing beats. They also like to take water baths, and do so frequently during the wet season when pools of water are more plentiful.

The normal walking pace of ostriches is 2.5 miles per hour (4 kilometers per hour). When ostriches sense danger or are threatened, they can run at speeds of up to 45 miles per hour (70 kilometers per hour) for a few minutes and can maintain a steady speed of about 31 miles per hour (50 kilometers per hour) for thirty minutes. Ostrich strides can be 10 to 16 feet (3 to 5 meters). When running, ostriches hold their wings out for balance, especially when making sudden turns. Ostriches



prefer to outrun their predators but when cornered, they will use their long and thick legs as weapons. An ostrich's kick is so powerful, it has been known to kill lions.

Ostriches have a wide variety of vocal sounds, including whistles, snorts, and grunts. They have a loud booming call used to announce their territory.

Ostriches are territorial, meaning they are protective of an area they consider home and claim exclusively for themselves. Each family has its own territory, which is established by the dominant male. The family also has a dominant female and several other females, called minor hens. During the mating season, a male will show its dominance by stretching its head high and lifting its wing and tail feathers. Ostriches of both sexes show submission by holding their heads, wings, and tails towards the ground.

When ostriches are not breeding, they usually form flocks of two to ten birds. (© Nigel Dennis/Photo Researchers, Inc. Reproduced by permission.)



Males and females are polygamous (puh-LIH-guh-mus), meaning they have more than one mate at the same time. Following mating, the dominant male will build a nest by scraping the ground or sand with his feet several times, making a shallow depression. A number of females will lay their eggs in a single nest. The dominant hen is the first to lay eggs. She will lay up to twelve eggs in the center of the nest over a three-week period. The minor hens will then lay their eggs around the dominant hen's eggs. Ostrich nests usually contain thirteen to twenty eggs but can contain up to sixty eggs. On average, one egg is 6 inches (15 centimeters) long and 5 inches (13 centimeters) wide and weighs 3 pounds (1.4 kilograms). Often, after all the eggs are deposited, the dominant female will discard some of the eggs laid by the minor hens. The dominant male sits on the eggs at night and the dominant female during the day. The eggs take about forty-two days to hatch. About 10 percent of the eggs will hatch and on average only one chick per nest will survive to adulthood. The average lifespan of an ostrich is thirty to forty years but can be up to fifty years, both in the wild and in captivity.

OSTRICHES AND PEOPLE

The documented relationship between ostriches and humans dates back 5,000 years to Mesopotamia and Egypt, where ostriches were raised for their feathers, eggs, skin, and meat. Ostriches are still used for these purposes but are raised on commercial farms in Africa, Europe, and North America. Their eggs are used both as food and for decoration.

CONSERVATION STATUS

Ostriches are not listed as a threatened species by the World Conservation Union (IUCN). The subspecies known as the Arabian ostrich is believed to have become extinct, no longer existing, in the 1940s. Ostriches were common in most of Africa and southwest Asia until about 100 years ago. Ostrich populations began declining about 300 years ago when their feathers became fashionable and hunting was widespread. By the early 1800s, ostriches were nearly extinct and farms were established in Africa to raise them. Although they survived extinction, their numbers are limited. They are found mostly in national parks, game preserves, and commercial farms.

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order

CHAPTER

TUBENOSED SEABIRDS

Procellariiformes

Class: Aves

Order: Procellariiformes

Number of families: 4 families

PHYSICAL CHARACTERISTICS

Tubular nostrils are common to every procellariiform (member of the order Procellariiformes). In the albatross, the nostrils stick out from both sides of the bill. In the other three families, the nostrils sit at the base of the upper bill. Procellariiforms differ from other birds in that they have a highly developed sense of smell, which helps them locate food and breeding sites. Procellariiforms' bills are split into seven to nine horny plates, and the upper bill is hooked. This sharp hook, which is actually formed by a plate, allows the birds to hold onto slippery foods such as fish and squid.

No other bird order has as large a size range as these seabirds. The storm-petrel weighs less than 1 ounce (20 grams) and has a wingspan of 12.5 inches (32 centimeters). The largest species, the albatross, can weigh more than 24 pounds (11 kilograms) and has wingspan of up to 12 feet (3.6 meters).

Procellariiformes are covered in black, gray, brown, and white feathers. Most have black legs and feet, though the shearwaters' are blue. The bills are dark gray or black and often have a distinct yellow, orange, or pink coloration.

Procellariiformes have oil in their stomachs that acts as a food source during the long periods between meals. In addition, the oil is used as a defense mechanism. When threatened, chicks and ground-nesting adults regurgitate (re-GER-jih-tate), bring up from the stomach, the oil and spray it over their predators. The oil cools to a waxy substance that damages the feathers of the enemy birds.

phylum

class

subclass

● **order**

monotypic order

suborder

family

GEOGRAPHIC RANGE

No other birds have as wide a distribution as the Procellariiformes. They are found in Antarctica as well as Greenland and in every ocean across the globe.

HABITAT

Tubenosed seabirds are found mostly on islands with few land-based predators. Those that nest on the mainland do so primarily in deserts or mountainsides, where there are fewer predators. Because the larger birds need strong winds to help them get airborne, breeding sites must be windswept. This makes the sub-Antarctic islands perfect for breeding. Unless they are breeding, these birds spend their time on the ocean where food is abundant. Some species migrate, move from place to place, between the Northern and Southern Hemispheres, repeating the same migration pattern each year.

DIET

Larger seabirds such as the albatross eat mostly squid, though they snack on other seabirds and carrion, dead, rotting flesh, as well. They eat the carcasses of seals and whales while the smaller seabirds eat the leftover scraps. Only the larger seabirds look for food on land. All Procellariiformes take advantage of the behavior of whales, dolphins, sharks, and tuna. When these predators push schools of fish close to the surface in order to eat them, tubenosed seabirds dive down and snatch them from the water. These seabirds usually get their food from just below or on the surface of the water, though some of the species can dive more than 30 feet (10 meters) below the surface if necessary.

BEHAVIOR AND REPRODUCTION

Procellariiforms live in groups, even when breeding. Although their flocks often contain numerous species, fights occur frequently, with the larger species forcing out those smaller birds. Unless competing for food, most procellariiforms are silent on the water. However, when nesting on land, they communicate with shrieks and calls.

These seabirds breed slowly, laying just one egg each season. The mother sits on the egg anywhere from six to eleven weeks. Once born, chicks take two to nine months before they can fly independently. This waiting period is longer than that of most birds. Experts believe this is because there are very few

predators, animals that hunt them for food, on the islands where these birds build their nests, so there is no pressure for the chicks to learn to fly quickly. Procellariiforms do not breed during the first year of life, and larger species wait over ten years before they first breed.

During breeding season, tubenosed seabirds build their nests on the ground in large colonies. Both sexes help build the nest, and both help raise the chicks. Though procellariiforms do choose just one mate, evidence has shown that males are involved in pairings outside the primary relationship.

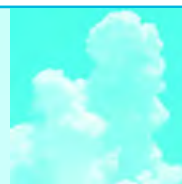
TUBENOSED SEABIRDS AND PEOPLE

Because of their ocean habitat, procellariiforms have a long history of interaction with fishermen and seafarers. These birds help fishermen locate fish and other marine life. In addition, their archaeological remains have been found around the world. Today, only the shearwater species is eaten, as are the eggs of the petrel. Humans also use the feathers of the albatross in the hat-making industry, and petrel is often used as bait by fishermen. Some communities use the stomach oil of procellariiforms as lamp oil and as an ingredient in medicine.

CONSERVATION STATUS

Twenty-three of the 108 species are threatened with extinction. One species, the Guadalupe storm-petrel, has become extinct since 1600. The primary threat is the introduction of predators to the breeding islands.

Prior to 1991, drift-net fishing was allowed. This is a type of fishing in which large nets were cast onto the waters and then hauled in. Although drift-nets efficiently caught large numbers of fish with little effort, they also caught other wildlife, including dolphins and seabirds. Drift-net fisheries were believed to be responsible for the deaths of 500,000 seabirds every year. Despite the ban on drift-net fishing, thousands of procellariiforms



DID YOU KNOW?

- Procellariiforms smell really bad. Experts attribute this smell to the oil in the birds' stomachs. Giant petrels are nicknamed "stinkers" because of the intensity of their odor.
- Some seafarers believed albatrosses were good omens and that killing one would bring bad luck.
- Other fishermen considered it bad luck to see an albatross.
- Folklore has it that procellariiforms are the embodiment of the souls of cruel sea captains or drowned sailors, destined to wander the seas for all eternity.
- Albatrosses are well known for being able to follow ships for thousands of miles (kilometers).
- Despite the superstition that to kill an albatross would bring bad luck, sailors used albatross feet for tobacco pouches even into the late 1800s.

are still killed by long-line fisheries, a method in which long, thick hooks are baited and cast out to sea; the hooks often get caught in the necks of albatrosses, and this method catches a lot of “trash” sea life, similar to drift-netting fisheries, and trawl, a bag-like net is carried along by a boat, catching everything in its wake. A 1991 study estimated that 44,000 albatrosses are killed in Japan each year by these methods.

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family CHAPTER

ALBATROSSES

Diomedidae

Class: Aves

Order: Procellariiformes

Family: Diomedidae

Number of species: 14 species

PHYSICAL CHARACTERISTICS

The largest albatrosses have wingspans that can exceed 9.8 feet (3 meters). Adults have black backs and white underwings. Their hooked bills are 5.5 to 7.5 inches (14 to 19 centimeters) with a pinkish hue in adults that are raising chicks.

Northern Pacific albatrosses have wingspans of 6.2 to 7.9 feet (1.9 to 2.4 meters). Although all four species have short, black tails, their bodies vary in coloration. One of the smaller birds, the Laysan albatross, has white feathers on its body and dark upper wings while the black-footed albatross is mostly dark brown except for a white patch on its hind end. The eleven mollymawk species vary greatly in coloration.

The two sooty albatrosses have a wing span ranging from 6 to 7.15 feet (1.8 to 2.2 meters). They have the most pointed tails of the family and have mainly dark bills, feathers, and legs.

GEOGRAPHIC RANGE

Albatrosses are found in the northern Pacific Ocean, Galápagos Islands to the coasts of Ecuador and Peru. They are also found in the Southern Hemisphere on coastal waters.

HABITAT

An albatross spends more than 70 percent of its life on the ocean, where it searches for food, rests, and migrates, moves from one part of the world to another. Albatrosses require wind to help them get off the ground, so windswept islands are chosen for breeding sites. Here they build their nests and raise their

phylum

class

subclass

order

monotypic order

suborder

▲ family



THE RIME OF THE ANCIENT MARINER

In 1798, Samuel Taylor Coleridge wrote a poem titled, *The Rime of the Ancient Mariner*. The mariner and his crew were visited by an albatross, considered by many to be a sign of good luck. When the mariner shoots the bird, his ship and shipmates are lost, he is blamed for committing a sin by killing a good-luck omen. As punishment, his shipmates hang the dead albatross around the neck of the ancient mariner. This poem popularized the albatross, and led it to become part of slang expression. The word “albatross” is now a figurative expression used to mean “something that hinders or handicaps.”

young for the first months of life. Certain species prefer small, rocky islands on which to build their nests while others choose grassy slopes or plains so that there can be more distance between nesting sites.

DIET

Squid is the favorite food of the albatross. Because many squid glow in the dark, albatross often feed at night. They also eat the carcasses of seals, penguins, whales, and other marine life. In addition to fish, albatrosses consume crabs, krill, seaweed, and small seabirds. Most food is found at the water’s surface, though albatrosses have been known to dive and swim underwater for short distances (up to 16 feet [5 meters]) while foraging for food.

BEHAVIOR AND REPRODUCTION

Though quiet while at sea, albatrosses are quite noisy at breeding colonies, where they communicate by wailing, crying, and clattering their bills. There is a definite courtship, rituals associated with mating,

among the albatross, ranging from dances and wing displays to “calling” to one another.

Though fighting is not a regular occurrence, the albatross will defend its nest site. Usually a threat display or charging will be enough of a warning, but the hooked bill is useful in damaging eyes and bills if necessary. If approached, chicks and parents will regurgitate, bring up from the stomach, stomach oil and spew it at the intruder, covering him in a waxy substance that can harm feathers. The albatross grooms itself often, and parents are quite attentive to the cleaning of the chicks.

After finding suitable land, the albatross usually builds a bowl-shaped nest and deposits a single egg into it. Albatrosses are monogamous, having one mate, and lay one egg each year. Incubation, the time it takes to warm the egg sufficiently for hatching to begin, lasts anywhere from sixty-five to eighty-five days. Parents take turns sitting on the egg, and both will play a role in raising the chick. Each turn lasts from one to twenty-nine days.

Hatching occurs over a period of two to five days. Chicks remain with a parent at all times for the first three months and will fledge, take its first flight, between 120 and 180 days for smaller species to 220 and 303 days for the larger family members.

Albatrosses do not begin breeding until they are between the ages of five and fifteen years. Chicks have a high survival rate because the breeding site has very few land predators. Annual mortality, death, rates for adults range from 3 to 9 percent. The oldest known albatross was still breeding at more than sixty-two years old.

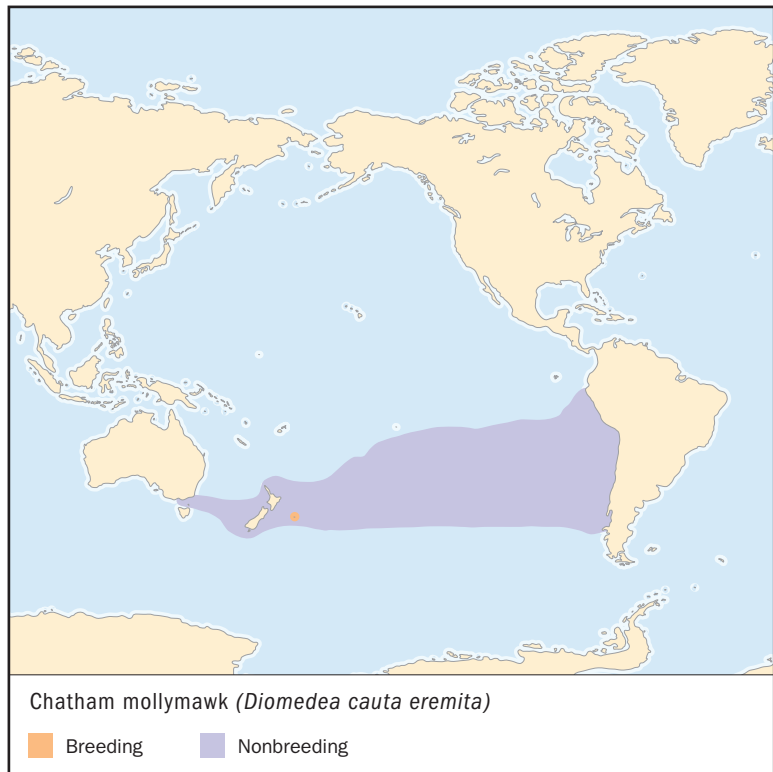
ALBATROSSES AND PEOPLE

Albatrosses were revered by some seafarers as a good luck sign. Others believed that to see an albatross at sea was warning of an oncoming storm. Fishermen depend on the albatross to show them where large populations of fish are located, and the harvesting of chicks (legally and illegally) goes on today. They are hunted for sport as well as food and scientific specimens.

CONSERVATION STATUS

There are not enough data to determine the rate of increase or decline for most species, but albatrosses are not in danger of extinction. Changes in global climate are responsible for the decrease in some species, such as the northern royal albatross. Changing sea temperatures also negatively affect food distribution and availability.

SPECIES ACCOUNTS



CHATHAM MOLLYMAWK *Diomedea cauta eremita*

Physical characteristics: Chatham mollymawks weigh in at 6.8 to 10.4 pounds (3.1 to 4.7 kilograms) and is the largest of the mollymawk family. They have a white body, dark gray head, and black upper wing and tail. The underwing is white except for wingtip and small dark patch at base of wing. Their bill is yellow with a dark tip and the cheek has an orange stripe across it.

Geographic range: Chatham mollymawks breed only at The Pyramid, a small rocky area of the Chatham Islands. They rarely stray far from this site, even during the nonbreeding season.

Habitat: Chatham mollymawks build small nests of soil and sparse vegetation on rocky slopes and ledges. These nests usually collapse and must be rebuilt every season.

Diet: They live off of krill, barnacles, and fish. They also scavenge behind fishing boats for bait and other discarded marine life.

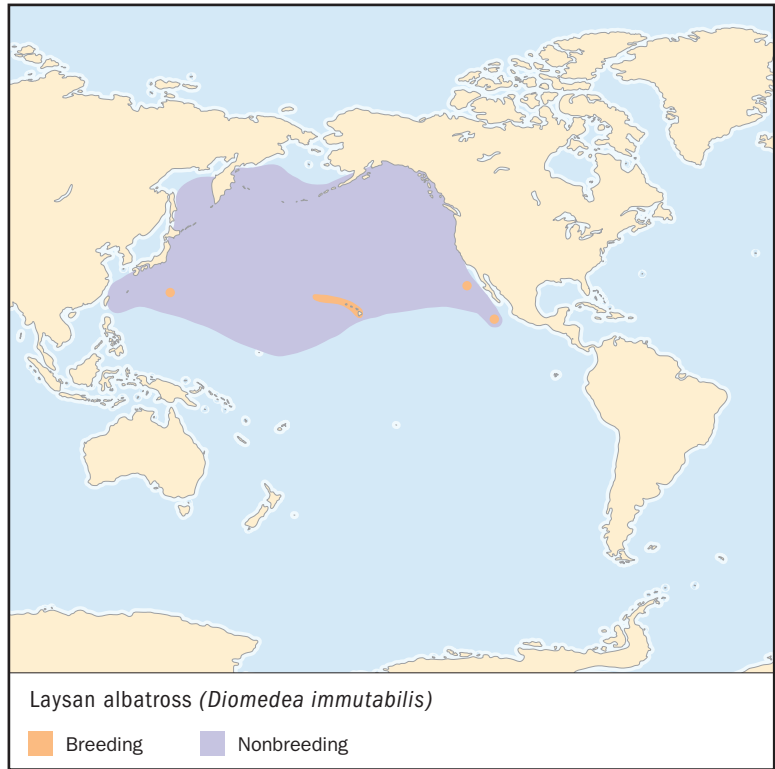
Behavior and reproduction: During both threat and courtship, the mollymawk makes shrill buzzing sounds with its open mouth. Chatham mollymawks lay one egg between the end of August and beginning of October each year. Both parents share incubation duties with individual turns lasting no longer than five days. The youngest known mollymawk to breed was seven years old. This albatross mates with one partner for life.

Chatham mollymawks and people: There is no known interaction between this species and humans other than what is generally known about human use of albatrosses.

Conservation status: The Chatham mollymawk is Critically Endangered, facing an extremely high risk of extinction in the wild, because it has only one breeding site. ■



Chatham mollymawks build their nests on rocky slopes and ledges at a place in the Chatham Islands known as "The Pyramid." (Illustration by Dan Erickson. Reproduced by permission.)



LAYSAN ALBATROSS

Diomedea immutabilis

Physical characteristics: Laysan albatrosses have a wingspan of 6.4 to 6.7 feet (1.95 to 2.03 meters) and weigh 5.3 to 9.0 pounds (2.4 to 4.1 kilograms). They are white in color with black patches at the wrist and elbow. There is a gray patch around the eyes and cheeks. The bill is yellowish orange at the base and fades into pink with a black tip.

Geographic range: Laysan albatrosses live almost exclusively in the Hawaiian Islands. Smaller populations live on the Bonin Islands in the west Pacific Ocean and in the eastern Pacific at Islas Guadalupe, Benedicto, and Clarion.

Habitat: Laysan albatrosses spend most of their time on the water, moving onto land only to breed.



Laysan albatross parents lay just one egg, and take turns sitting on it. Both parents help care for the chick. (© Frans Lanting/Photo Researchers, Inc. Reproduced by permission.)

Diet: Squid is the main staple of the Laysan albatrosses' diet, but they also eat fish eggs, fish, and crustaceans, marine life having no backbone. They are not known to follow fishing vessels as is the habit of other albatross species.

Behavior and reproduction: Laysan albatrosses have a wider range of displays than other albatrosses, and their communicative sounds have are distinct from those of other families. The nest is a hole in the ground that is built up around the rim using sand and other available debris. They lay one egg between the end of November and the end of December. Incubation lasts an average of sixty-four days, with parents taking turns, sometimes up to three weeks at a time.

Laysan albatrosses and people: The Laysan albatross is nicknamed the "gooney" and is a common sight in the countries surrounding the north Pacific Ocean.

Conservation status: The world population of Laysan albatrosses is around 607,000 pairs, although some colonies are decreasing due to commercial fishing and high levels of contaminants as well as plastic trash in the water. The species is considered Vulnerable, facing a high risk of extinction in the wild. ■

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family CHAPTER

SHEARWATERS, PETRELS, AND FULMARS

Procellariidae

Class: Aves

Order: Procellariiformes

Family: Procellariidae

Number of species: 60 to 76
species

PHYSICAL CHARACTERISTICS

Procellariids (members of the family Procellariidae) have hooked bills that assist them in handling slippery food. The tubular (tube-shaped) nostrils are credited with the birds' well-developed sense of smell used for locating food from far away as well as nests in the dark.

These birds range from 9.1 to 11 inches (23 to 28 centimeters) to 31.9 to 39 inches (81 to 99 centimeters), depending on the species. Wingspans measure about 6.6 feet (2 meters). Procellariids are covered in white, blue, gray, brown, and black feathers. Unlike other wildlife, coloration does not vary by sex or season.

Because their legs are rather weak, procellariids are generally awkward on land. They do not actually walk, but rather shuffle on their breasts and wings. The exception to this is the giant petrel, whose legs are strong.

GEOGRAPHIC RANGE

Procellariids live on oceans throughout the world, in the Northern and Southern Hemispheres.

HABITAT

Procellariids live almost exclusively on the ocean, coming to shore only to breed.

phylum

class

subclass

order

monotypic order

suborder

▲ **family**



FREQUENT FLYER MILES

Manx shearwaters migrate over 6,210 miles (10,000 kilometers) every winter on their way to South America. This is an amazing fact in and of itself, but consider how far the oldest known wild bird has flown. A Manx shearwater was tagged in Northern Ireland and identified as an adult (at least five years old) in 1953. It was trapped again in July 2003, making it at least fifty-five years old. Given that this Manx makes an annual migration of 6,210 miles, which means it has flown a minimum of 621,000 miles (1,000,000 kilometers) in its lifetime (fifty roundtrip flights of 12,420 miles [19,984 kilometers]).

DIET

These nocturnal, active at night, birds eat squid, plankton, and marine life that has been discarded from fishing vessels. Giant petrels also eat seal and penguin carcasses.

BEHAVIOR AND REPRODUCTION

Procellariids excel at flying, with equal ability to flap as well as soar, which makes finding and catching food easy. Shearwaters are named for their tendency to glide just over the water's surface.

Like other Procellariiformes, procellariids vomit their smelly stomach oil onto enemies. This defense mechanism is used against predators during breeding season and against humans who get too close.

Procellariids breed in locations near seawater. Although many species gather together to form breeding colonies, others breed alone or in much smaller colonies. Their nests are made of mounds of grass and stones or in the crevices of rock ledges, depending on the location and what building

material is available. Still other nesters burrow into the ground or use abandoned rabbit dens as home for their egg.

At the time of its first breeding the procellariid is usually around five or six years old. One egg is laid, and both parents take turns sitting on it in shifts lasting two to fourteen days. This goes on for six to nine weeks, depending on the species, and then the egg hatches. Parents care for the chick but leave it as soon as it is able to control its own body temperature, which is anywhere from two to twenty days after birth. At that time, parents visit the chick only at feeding time. A week or two after the parents leave, the chick heads out to sea.

These birds live for an average of fifteen to twenty years, though one is on record as living to the age of fifty.

SHEARWATERS, PETRELS, AND FULMARS AND PEOPLE

Procellariid eggs and meat are eaten by people in a number of cultures, including Eskimos and Europeans. Every year

several thousand chicks are harvested for their feathers, fat, flesh, oil, and down in New Zealand and Tasmania.

CONSERVATION STATUS

Some procellariid populations are thriving, but others are among the most threatened birds in the world. Forty-seven procellariids are on the World Conservation Union's (IUCN) List of Threatened Species. All are Threatened, facing a high to extremely high risk of extinction, or Near Threatened, in danger of becoming threatened. These species are considered threatened because of habitat deterioration as well as introduced, brought in by humans, predators.

SPECIES ACCOUNTS



MANX SHEARWATER *Puffinus puffinus*

Physical characteristics: Manx shearwaters weigh anywhere from 12.3 to 20.3 ounces (350 to 575 grams) and are 11.8 to 15 inches (30 to 38 centimeters) long. Their wingspan is 29.9 to 35 inches (76 to 89 centimeters). The upper body is black with white underneath.

Geographic range: Manx shearwaters breed mostly on the coastal cliffs around the North Atlantic Ocean, with a large population in Britain and Ireland. They spend the winter months off the coast of Brazil, Argentina, and Uruguay.

Habitat: Manx shearwaters burrow on offshore islands and coastal hills.

Diet: They eat mostly squid, crustaceans, and shoaling fish, small fish that travel in large schools.

Behavior and reproduction: Manx shearwaters glide along the ocean's waves and are known to dive and swim near the surface to feed. Breeding colonies can include hundreds of thousands of pairs of birds who gather at night, with the breeding season beginning in March. Although silent on the water, the calling of the birds at the breeding site is near deafening.

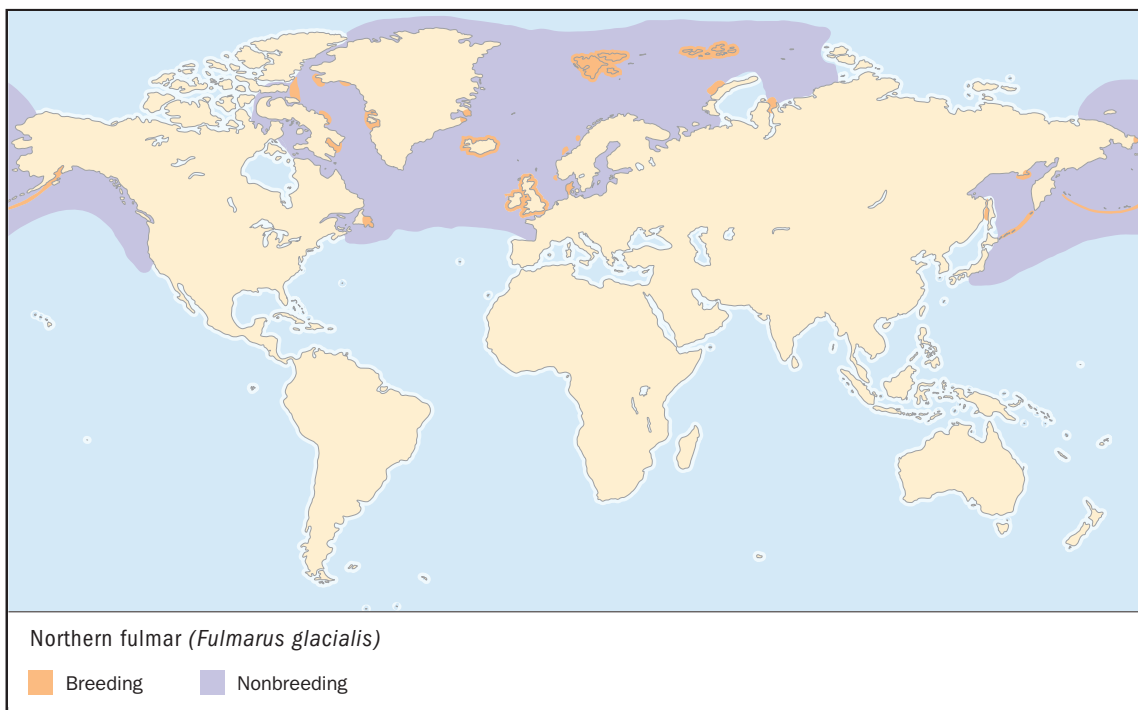
One egg is laid in mid-May and incubates, warmed by parents, for forty-seven to fifty-five days. Chicks fly on their own after sixty-two to seventy-six days. First breeding occurs at five or six years of age.

Manx shearwaters and people: The Manx shearwater used to be hunted for food, but today is basically left alone.

Conservation status: The Manx shearwater is not threatened. ■



Manx shearwaters glide along the ocean's waves and even dive into the water and swim near the surface to feed. (Illustration by Bruce Worden. Reproduced by permission.)



NORTHERN FULMAR

Fulmarus glacialis

Physical characteristics: One of the larger shearwaters, the northern fulmar is about 18 inches (46 centimeters) long, with a wingspan of 40.2 to 44.1 inches (102 to 112 centimeters). Northern fulmars resemble gulls, with gray upper bodies and white heads. However, their wings are broader, and the neck is thicker. Their bill is yellow.

Geographic range: Northern fulmars live in the northern Atlantic and Pacific Oceans. They breed in the Aleutian Islands of Alaska.

Habitat: Northern fulmars prefer the colder water of the Northern Hemisphere.

Diet: They feed on fish, squid, shrimp, plankton, and scraps tossed off of fishing boats. If this food is scarce, the northern fulmar will scavenge, eat, carrion, dead, rotting flesh.



Behavior and reproduction: Northern fulmars are more aggressive in their use of vomiting as a defense mechanism than are other procellariids. Although commonly confused with gulls, their flying patterns make them easy to distinguish. Northern fulmars hold their stiff wings straight out from their bodies after several quick wing beats, allowing them to glide rather than fly.

Breeding season begins in May, and nests are actually shallow, bowl-like depressions lined with vegetation. In some areas, the birds lay their eggs on bare rocks. A single egg is laid each year. Incubation lasts forty-seven to fifty-three days, and the parents care for the chick for the first two weeks. Chicks take their first solo flights around the age of forty-six to fifty-three days.

Northern fulmars and people: Although it was once hunted for food, the northern fulmar now has limited human interaction. It comes into contact with humans only on the occasions when it follows fishing vessels in search of food.

Conservation status: These birds are not threatened, although their populations have declined with the advent of modern fish processing

Northern fulmar nests are just shallow, bowl-like depressions lined with vegetation. They lay just one egg each year. (© Art Wolfe/Photo Researchers, Inc. Reproduced by permission.)

methods now used at sea. The innovation has reduced the amount of “waste” food thrown overboard. ■

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family CHAPTER

STORM-PETRELS

Hydrobatidae

Class: Aves

Order: Procellariiformes

Family: Hydrobatidae

Number of species: 21 species

PHYSICAL CHARACTERISTICS

Storm-petrels are small seabirds that use their long legs to fend off the water as they snap up food from the surface. Like other procellariiforms (members of the order Procellariiformes), the storm-petrel has tubular nostrils that span almost half the length of the bill. The wings are rounded at the tip, and wing spans vary from about 12.6 inches to 22.4 inches (32 to 57 centimeters), depending on the species. They weigh from 0.7 ounces (20 grams) to 2.9 ounces (83 grams).

Their feathers are dark black or brown, and the storm-petrel's hind end is white. Tails are squared off at the end or forked, and all storm-petrels give off a musty smell characteristic of tubenoses. Females are larger than males.

GEOGRAPHIC RANGE

Though distributed throughout the world, storm-petrels are particularly plentiful in the Southern Ocean. While most species breed around Australasia (Australia and nearby Asian islands), five assemble around islands from Mexico to California. The birds can be found in all ocean waters.

HABITAT

Because they are small and dart around so quickly, it is difficult to identify the storm-petrel, so its habitats are not well known. All storm-petrels live solely in the ocean and retreat to land only during breeding season.

phylum

class

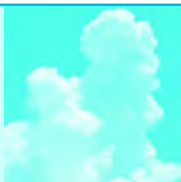
subclass

order

monotypic order

suborder

▲ family



RESURRECTION FROM THE DEAD

In late December 2003, two British men, Bob Flood and Bryan Thomas, announced that they had seen a New Zealand storm-petrel—believed to have been extinct since 1850.

The New Zealand storm-petrel had not been seen since 1850, when its population was decimated by rats. Experts later confirmed that the bird had survived undetected, on a predator-free island. According to BirdLife International, eleven more New Zealand storm-petrels were detected in mid-January 2004 and were filmed for television.

DIET

Crustaceans, freshwater or saltwater animals without backbones, are key foods in the storm-petrel's diet. Depending on where the petrels are, they may supplement their diet with other marine life as well. They tend to like oily foods, and their stomachs contain the oil found in most tubenoses. This oil is used not only for warding off intruders, but as a food source for adults and chicks when other food supplies are scarce.

They feed just below the surface of the water, and though they seem to prefer eating alone, they will gather together around larger food sources such as a dead squid. Storm-petrels follow fishing vessels, eating the food scraps that spray up from the propellers.

BEHAVIOR AND REPRODUCTION

The nests are burrows, holes in the ground, which, once built, are retained each season. The same pair returns to this nest year after year. Nests are visited at night,

when there are fewer predators, animals that hunt them for food. Unlike some other procellariiforms, storm-petrels do not engage in fancy courtship displays or rituals.

Storm-petrels have a variety of calls that vary between males and females. These birds tend to be solitary, alone, though some flocking occurs.

Storm-petrels are monogamous (muh-NAH-guh-mus), having only one mate, and begin breeding at four or five years of age. Breeding sites are chosen according to their location in relation to water and food. Some female storm-petrels participate in what is known as the "prelaying exodus." During this period they feed at sea while producing their single egg, which allows them to reach the best feeding area before returning to the nest. Once back at the nest, she lays her egg within twenty-four hours.

The burrow nests are usually made by the males. The burrow is usually at the end of a tunnel, and parents take turns sitting on the egg anywhere from two to four and a half days.

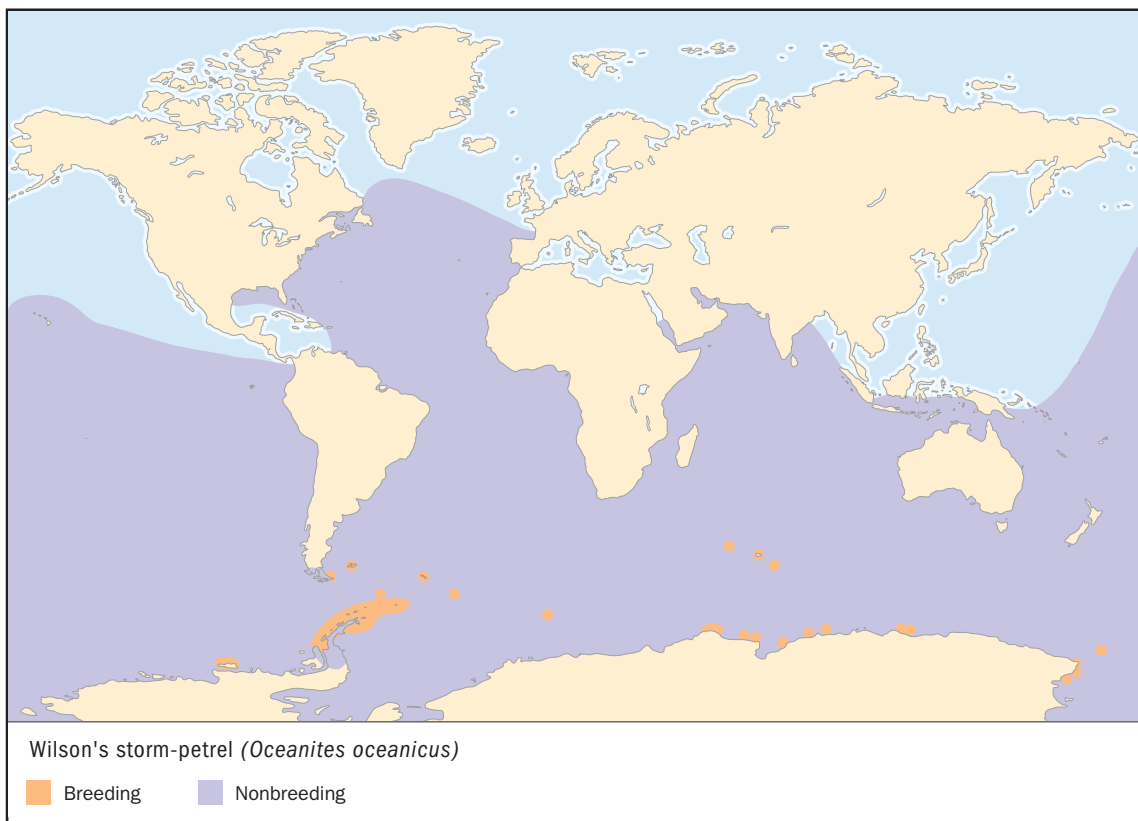
This goes on typically for thirty-eight to forty-two days. The down-covered chick is hatched and attended to by its parents until it can control its own body temperature. At that point, parents visit the chick only to feed it. The chick can go six to seven days without food.

STORM-PETRELS AND PEOPLE

Seamen and fishermen have traditionally caught storm-petrels and used them as bait. This was easy to do since the birds tend to gather around fishing vessels. Native Americans were known to eat storm-petrels.

CONSERVATION STATUS

No storm-petrel is threatened, although a few of the harder-to-track species need further investigation. Predators have wiped out entire colonies, but this has not yet threatened the species.



SPECIES ACCOUNT

WILSON'S STORM-PETREL *Oceanites oceanicus*

Physical characteristics: The feathers of this 7-inch (18-centimeter), 1.3-ounce (35-gram) bird are completely black except for a white hind-end. The pale coloring reaches across its lower thighs, and there is a band of it across each wing. Even the long legs and bill are black. There is no difference in coloration or size between the males and females.

Geographic range: Wilson's storm-petrels breed on the shores of Antarctica and nearby islands. They are common in the North Atlantic Ocean. Wilson's storm-petrels can be found in all oceans but they avoid the Arctic seas. They come ashore only to breed.

Habitat: Wilson's storm-petrels congregate, gather, along the ocean shelves during the northern summer, and most move back to southern waters to breed.

Diet: Although crustaceans are the preferred food, Wilson's storm-petrels will also eat fish, which has a higher energy content than crustaceans. They find their food by running on top of the water, wings outstretched, and pecking at prey swimming just below the surface. If necessary, the bird will immerse its entire head in the water to catch food.

Behavior and reproduction: Wilson's storm-petrels like to eat in groups, and they are notorious boat followers. These birds are highly migratory, move seasonally, and will travel thousands of miles each year in search of abundant food supplies. Although there is no evidence that petrel pairs remain together throughout migration, they do seem to maintain their bond for several seasons so that the same pair returns to the same nest year after year.

Most nests are built in rock crevices, and the single egg is laid on bare earth in a shallow "bowl" nest in mid-December. The eggs hatch after forty days of incubation, sitting on and warming the eggs for chick development, during which parents take forty-eight hour shifts. Chicks fly on their own for the first time between forty-eight and seventy-eight days old.

Wilson storm-petrels and people: The only interaction with humans occurs when the birds follow fishing boats. Early sailors used to kill Wilson's storm-petrels from the stern of the ship. The birds were attracted to the light, making it easy for them to be caught. Seal hunters would thread wicks through the birds to extract the stomach oil, which would then be used as a candle.

Conservation status: Wilson's storm-petrel is one of the most abundant birds, due in large part to its isolation from humans. When chicks die, it is usually due to snow covering the entrance to the nest, which makes it impossible for parents to get food to their chicks. ■



Wilson's storm-petrels find their food by running on top of the water, wings outstretched, and pecking at prey swimming just below the surface. (Illustration by Bruce Worden. Reproduced by permission.)

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family CHAPTER

DIVING-PETRELS

Pelecanoididae

Class: Aves

Order: Procellariiformes

Family: Pelecanoididae

Number of species: 4 species

PHYSICAL CHARACTERISTICS

Diving-petrels are small, tubenosed seabirds that dive and swim to catch their food. They weight 4 to 8 ounces (120 to 220 grams) and are 7 to 10 inches (18 to 25 centimeters) long. Unlike other tubenoses, the tube-like nostrils of the diving-petrel project upward rather than forward. Scientists believe this is an adaptation, change over time, to diving. The bill is short and wide, with a slight hook at the tip. The short wings are used as flippers to help move the bird forward. Feathers are bluish-gray or black with white on the underside. When the birds molt, shed their feathers, they are unable to fly until new feathers grow in.

GEOGRAPHIC RANGE

Diving-petrels live in the waters of the Southern Hemisphere. Although they prefer shallow coastal waters, they have been sighted offshore as well.

Peruvian and Magellan diving-petrels live in South American waters, while the common and South Georgian species are circumpolar, living at both the North and South Poles.

HABITAT

Diving-petrels prefer the colder temperatures of the ocean waters. They breed on oceanic islands and do not stray far from breeding sites.

DIET

Diving-petrels get their name from their habit of diving for their food, mainly small fish and crustaceans such as crabs and

phylum

class

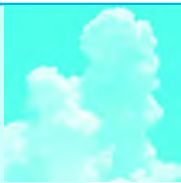
subclass

order

monotypic order

suborder

▲ family



ECOTOURISM: PUTTING YOUR MONEY WHERE YOUR MOUTH IS

According to The International Ecotourism Society (TIES), ecotourism is “responsible travel to natural areas that conserves the environment and improves the well-being of local people.” Ecotourism benefits animal life in many ways. First, some money goes toward the cost of maintaining wildlife populations and habitats. Second, ecotourists are more likely to invest time or money into the part of the environment that they are concerned about.

Birds like diving-petrels do not interact directly with humans. But by attracting people who travel to watch birds, petrels indirectly benefit the regions where they live by bringing in revenue, money, to help sustain an environmental balance.

shrimp. They use their wings to propel themselves under water toward their food. Once their prey is caught, the diving-petrels use their wings to push themselves toward the waters’ surface and directly back into the air.

BEHAVIOR AND REPRODUCTION

Diving-petrels are the only tubenoses that dive into the water to catch food. They typically fly low and fast over the water, and in stormy weather, often fly right into the crests of waves rather than fly over them. These birds are social, eating and breeding in herds and colonies. They come to land only to breed.

Diving-petrels nest in burrows, holes, or in the crevices of rocks. The female lays one egg that incubates, warms, for eight weeks. Both parents take turns sitting on the egg, usually for day-long periods. Eggs are laid between July and December, and newborn chicks are watched closely for the first two weeks of life. The chick will make its first flight around eight weeks, and at that time, begins to take care of itself.

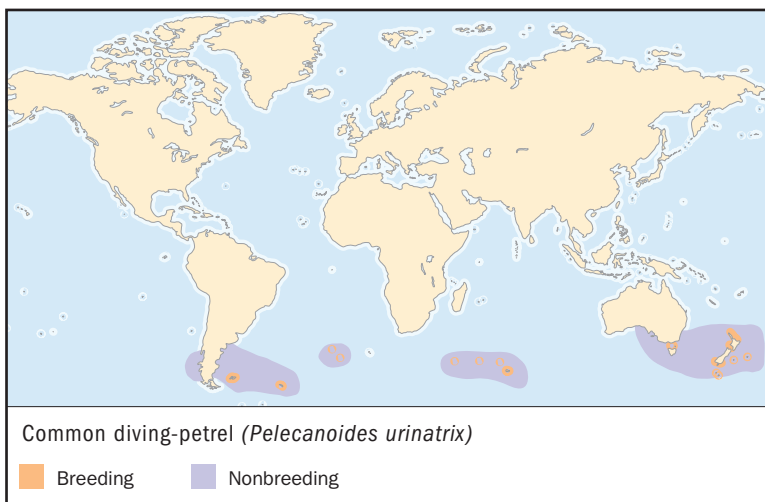
Diving-petrels molt after the breeding season is over, and until their flight feathers grow back, they are flightless.

DIVING-PETRELS AND PEOPLE

Diving-petrels and people do not interact. The birds do attract birdwatchers, so they benefit marine ecotourism, travel in order to study wildlife and the environment.

CONSERVATION STATUS

Except for the Peruvian diving-petrel, these birds are not threatened. The Peruvian diving-petrel is Endangered, facing a very high risk of extinction in the wild, due to excessive hunting and habitat destruction.



COMMON DIVING-PETREL

Pelecanoides urinatrix

SPECIES ACCOUNT

Physical characteristics: Common diving-petrels are 8 to 10 inches (20 to 25 centimeters) long with a wingspan of 13 to 15 inches (33 to 38 centimeters). They have the same bluish gray or darker and white coloration as other diving-petrels, and their legs and feet are bright blue. Their feet get even brighter during mating season. Their nostrils project upward.

Geographic range: Common diving-petrels are found in the Southern Ocean between 35 and 55° South latitude. They breed on islands off Australia, New Zealand, Chile, Argentina, and in the south Atlantic and Indian Oceans.

Habitat: Common diving-petrels feed in colder ocean waters close to breeding sites. They breed on oceanic islands.

Diet: Common diving-petrels dive into water to catch small fish and crustaceans such as crabs and shrimp.

Behavior and reproduction: These social birds fly low and fast through both air and water. The female lays a single egg in her burrow or crevice, and the egg is incubated for eight weeks by both parents.

Scientists estimate the lifespan of the common diving-petrel to be three to four years. Kelp gull, giant petrels, and skuas, aggressive birds

that feed on smaller species, feed on these smaller birds, remove large numbers from the population each year.

Common diving-petrels and people: Bird watching of the common diving petrel benefits the ecotourism trade.

Conservation status: Common diving-petrels are not threatened. ■

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monotypic order

CHAPTER

PENGUINS

Sphenisciformes

Class: Aves

Order: Sphenisciformes

One family: Spheniscidae

Number of species: 17 species

PHYSICAL CHARACTERISTICS

Penguins have large heads and long bodies. They resemble humans when they waddle around on their two webbed feet. Their short feathers, which provide excellent insulation against the cold water and air temperatures, are black on their backs and white on their chests, giving the appearance of a tuxedo. Their wings are stiff flippers that help them navigate the ocean waters.

Species vary in size, so penguins can weigh less than 3 pounds (1.1 kilograms) or as much as 88 pounds (40 kilograms). They can stand less than 18 inches (45 centimeters) high, or almost 4 feet (115 centimeters) tall. Males are somewhat bigger than females, but look similar otherwise.

Penguins cannot fly and their bones are much more solid and heavy than those of most birds. This is an adaptation that allows them to dive for food. Penguins differ from other birds in that, except for a patch on their bellies, their entire bodies are covered with feathers. Birds usually have feathers growing only in certain sections of skin.

GEOGRAPHIC RANGE

The Galápagos penguin lives just north of the equator, but all other species live in the southern half of the world. Although many equate the penguin with Antarctica, more than half of the seventeen penguin species are never seen there.

HABITAT

Although penguins spend most of their time diving for food, they do venture on land to rest, breed, and raise their young.

phylum

class

subclass

order

● **monotypic order**

suborder

family



DID YOU KNOW?

- The feathers of penguin chicks aren't weatherproof, but those of the adults are.
- Macaroni penguins got their name because of the feathers on their head, which make them look like the well-dressed men of eighteenth-century London who were the focus of the song "Yankee Doodle Dandy."
- Since their nests aren't very protective, female penguins eat more clams and mussels during the breeding season to elevate their calcium levels. This extra calcium makes their eggshells thicker.
- Penguins can swim at speeds of up to 15 miles per hour (24 kilometers per hour)!
- A penguin has more than seventy feathers per square inch (6.5 square centimeters) of skin.

Breeding colonies are usually near the shore, though some species move as far as 2 miles (3 kilometers) inland. Some breeding habitats are in snow, while others are on tropical islands.

DIET

Penguins eat squid, fish, and crustaceans such as crabs and shrimp. What they prefer depends on the species. When they are hunting prey, penguins dive deep and stay underwater for long periods of time. Depending on the species, they can stay underwater for less than a minute up to eighteen minutes at depths ranging from 98 feet (30 meters) to 1,755 feet (535 meters).

BEHAVIOR AND REPRODUCTION

The social penguin likes to live in groups of various sizes. They are rarely without each other's company and so have developed behaviors that allow them to live harmoniously for the most part. When they do fight, penguins use their flippers for hitting and their bills are used like swords.

Most penguins are somewhat monogamous (muh-NAH-guh-mus; have one mate), though they have been known to "divorce" and find new mates when a new breeding season begins. They engage in mating rituals and are able to find their mates in a crowd based on these rituals as well as by voice. Penguins are ready to breed between the ages of two and five years, with the female being ready somewhat earlier than the male.

Depending on the species, penguins lay one to three eggs. The incubation period lasts from thirty-three to sixty-four days, and chicks will hatch at the same time or within one day of each other. Once born, parents take turns caring for the chicks and hunting for food. The food-provider eats the prey, then regurgitates (re-GER-jih-tates; vomits) it for the chicks to eat. Once the chicks are old enough to eat and take care of themselves, parents continue to protect them.

Though adult penguins have no land predators, they do fall prey to sharks, leopard seals, sea lions, and killer whales. On land, chicks and eggs are often eaten by other birds.

In the wild, penguins can live up to twenty-five years.

PENGUINS AND PEOPLE

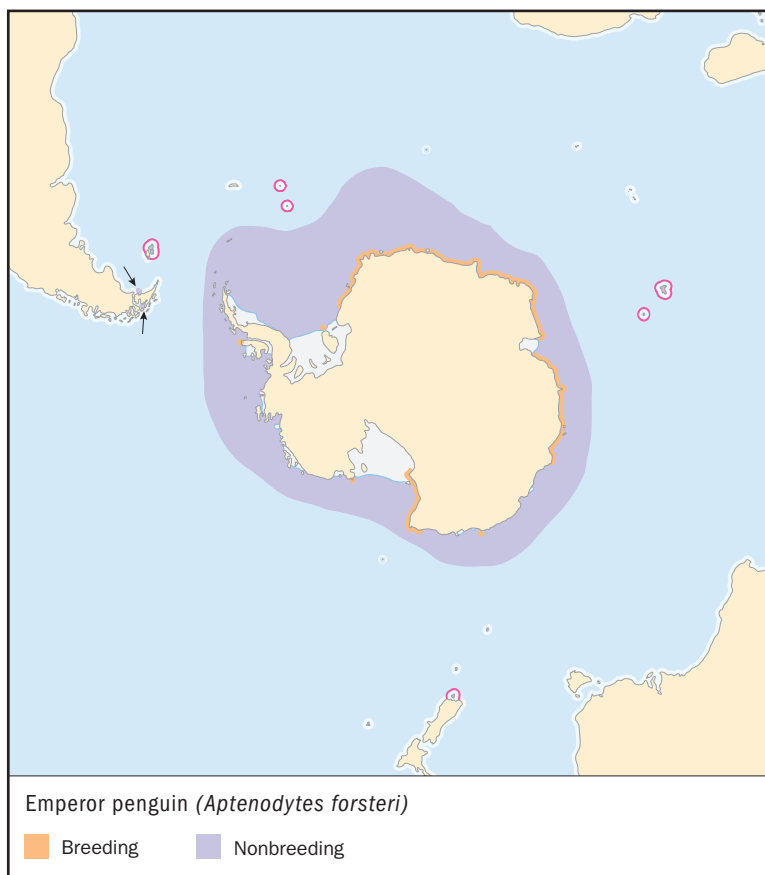
Historically, penguins were killed for food and the extraction of the oil that lay in their fat. The oil was used for lighting and fuel. Penguins are easy prey because they are not afraid of humans and so are easily captured. In the days of the explorers, it was common for the adventurers to kill three thousand penguins a day for food.

Despite protection, penguins are still illegally hunted for use as bait and as a food source.

CONSERVATION STATUS

Twelve species are included on the 2003 IUCN Red List of Threatened Species. The Galápagos, erect-crested, and yellow-eyed penguins are Endangered, facing a very high risk of extinction; seven species are Vulnerable, facing a high risk of extinction; and two are Near Threatened, in danger of becoming threatened with extinction.

SPECIES ACCOUNTS



EMPEROR PENGUIN *Aptenodytes forsteri*

Physical characteristics: The largest of the seventeen species, the emperor penguin, measures 39.4 to 51.2 inches (100 to 130 centimeters) in height. The male weighs 48.3 to 88 pounds (21.9 to 40 kilograms), while the female weighs 44.5 to 70.5 pounds (20.2 to 32 kilograms). The head, chin, and throat are black and there are bright yellow patches on the ears. The upper bill is black, the lower bill is pink, orange, or light purple.

Geographic range: Antarctica and nearby islands. The emperor is the only penguin that stays on the Antarctic continent year-round.



The emperor penguin is the only penguin that lives on Antarctica year-round. Males keep the eggs warm for over two months, and don't eat during that time. (© Art Wolfe/Photo Researchers, Inc. Reproduced by permission.)

Habitat: Emperor penguins live in the frigid Antarctic waters and breed on sea ice sheltered by ice cliffs.

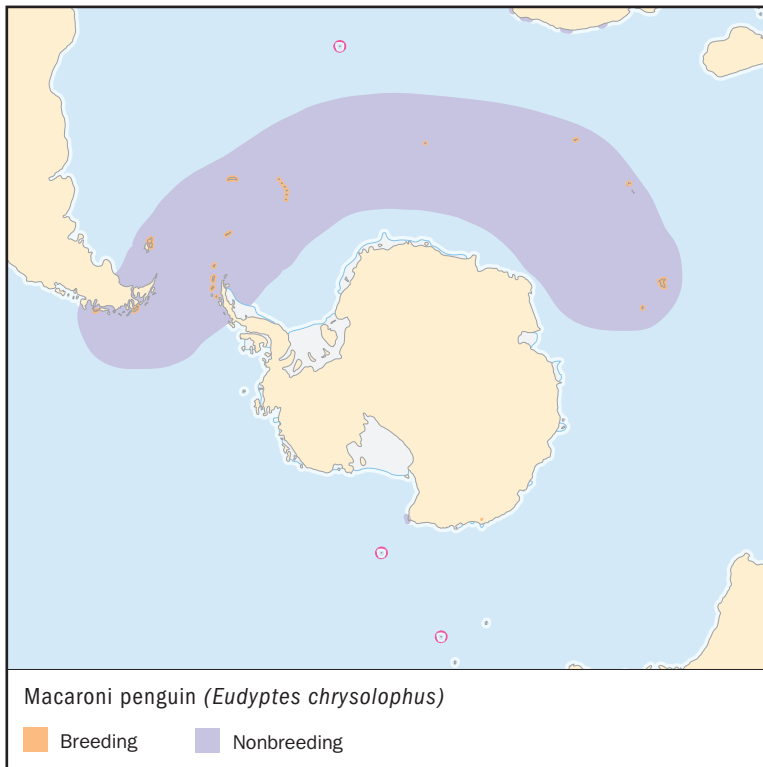
Diet: These birds eat small fish and crustaceans such as shrimp. Emperors are the deepest divers, and one researcher reported a dive that reached 1,755 feet (535 meters). The longest dive time on record is eighteen minutes. This species can spend sixty to seventy days at sea at one time, searching for food.

Behavior and reproduction: Emperor penguins breed in colonies. The female lays her egg and takes off to feed at sea. The egg is balanced on the father's feet, where he will protect it with his brood pouch for about sixty-five days. He withstands blizzards and icy temperatures for over two months and eats nothing the entire time.

Mothers return soon after the chicks hatch and parents take turns feeding and caring for the babies. Chicks leave the colonies at around five months of age.

Emperor penguins and people: When people think of penguins, it's usually the image of an emperor penguin that comes to mind. These birds are great attractions for the ecotourism industry (tourism that tries not to impact the environment while supporting local human populations).

Conservation status: These birds are not threatened. ■



MACARONI PENGUIN

Eudyptes chrysolophus

Physical characteristics: Both sexes are about 27.9 inches (71 centimeters) in height. Males weigh 8.2 to 14.1 pounds (3,720 to 6,410 grams) and females weigh 7.0 to 12.6 pounds (3,180 to 5,700 grams). Macaroni penguins have long yellow and orange feathers growing from the middle of their foreheads that look like eyebrows. The head and cheeks are black or dark gray, and the back is black. The breast, belly, and rump patch are white. Their eyes are dark red.

Geographic range: Macaroni penguins are found on Antarctica and neighboring islands. They remain in subantarctic waters during nonbreeding season.

Habitat: Macaroni penguins nest on steep terrain with little or no vegetation.



*Macaroni penguins breed in large colonies. Mates recognize each other by their calls.
(Illustration by Patricia Ferrer.
Reproduced by permission.)*

Diet: They eat crustaceans, squid, and fish.

Behavior and reproduction: Macaroni penguins breed in large colonies of up to more than one hundred thousand birds. They're noisy during breeding season, and it is by their individual calls that mates are able to recognize one another.

The female lays two eggs in her shallow nest, which is made by scraping in mud or gravel. The second egg, which is larger than the first, is usually the only one to survive. Parents take turns warming and protecting the egg. Within four to five weeks, the chick is born, and it survives on regurgitated food for the first month. In about ten weeks, they head out on their own.

At sea, adult penguins must be on the lookout for Leopard seals, killer whales, and sea lions. On shore, eggs and chicks are eaten by petrels, skuas, and gulls.

Macaroni penguins and people: Humans are actually the biggest threat to these birds due to the overhunting of krill, which is their primary food source.

Conservation status: This species is listed as Vulnerable due to habitat loss and pollution. ■



MAGELLANIC PENGUIN

Spheniscus magellanicus

Physical characteristics: Although both sexes measure 28 inches (71 centimeters), the male weighs more (5.9 to 9.0 pounds [2.7 to 4.1 kilograms]) than the female (6.4 to 10.6 pounds [2.9 to 4.8 kilograms]). This penguin has two black strips across its white chest. The cheeks and cap are brownish black, and the white under parts are speckled with black. The brown eyes look out over a short black bill. Feet are pink with black spots.



Magellanic penguins often return to the same nesting site every year. (Illustration by Patricia Ferrer. Reproduced by permission.)

Geographic range: This bird lives in central Chile and Argentina, south to Cape Horn and the Falkland Islands. Magellanic penguins migrate (travel to another region seasonally) from April to August. Those at the tip of South America travel as far north as Peru and Brazil.

Habitat: Magellanic penguins breed on islands in flat areas as well as on cliffs. They feed close to shore during breeding season.

Diet: This bird prefers schooling fish and squid.

Behavior and reproduction: Like other penguins the Magellanic species breeds in large colonies. They often return to the same nesting site year after year. This bird nests in burrows where possible, in ground nests when not. Both sexes build the nest and share all incubation and parenting duties. The chick from the second laid egg is less likely to survive than its older sibling. The chicks are fed regurgitated food every two to three days.

Magellanic penguins and people: Once hunted for meat and skins, this penguin is a major attraction for ecotourists at Punta Tombo in Argentina.

Conservation status: Magellanic penguins are listed as Near Threatened by the IUCN. Oil pollution is the biggest threat to this species, though their numbers are still in the millions. ■

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LOONS

Gaviiformes

Class: Aves

Order: Gaviiformes

One family: Gaviidae

Number of species: 5 species



monotypic order

CHAPTER

phylum

class

subclass

order

● **monotypic order**

suborder

family

PHYSICAL CHARACTERISTICS

The anatomy of the loon is specifically geared toward its need to capture fish. Its body is torpedo-shaped, and its neck is thick but longer than the average water bird. There are three toes on each of the two webbed feet, and the legs are toward the back of the body. Though the loons' underparts are totally white, the upperparts are dark gray or black, and the wings have a black-and-white checked pattern on them. All loons have red eyes and long beaks.

Adults range from 2.2 to 13.8 pounds (1 to 6.3 kilograms) and measure about 3 feet (almost 1 meter) long. Males are slightly larger than females.

GEOGRAPHIC RANGE

All species migrate (move region to region, seasonally) to warmer temperatures around the Gulf of Mexico and to the east and west coasts of North America during nonbreeding season. They also migrate to the Mediterranean Sea and coastal China. Alaska is the only region in which all five species can be found.

HABITAT

Loons can be found in inland lakes and tundra ponds. Less often they are seen in large freshwater lakes and rivers during the winter months.

DIET

Loons eat mostly medium-sized fish (7 to 8 inches, or 18 to 20 centimeters). Young loons are fed worms, mollusks, and crustaceans such as freshwater shrimp and crayfish.

Loons peer into the water, often with their bills submerged, and dive. Most food is eaten underwater, as loons can remain below the surface for more than a minute. Though most food is caught close to the surface, they may dive as deep as 230 feet (70 meters) if the water is clear enough. Loons eat a lot; a pair can consume 2,000 pounds (910 kilograms) of fish in one breeding season.

BEHAVIOR AND REPRODUCTION

The loon is famous for its vocalizations, which have been described as eerie and haunting. The type of sound—a cry, wail, cackle, or laugh—depends on the species. Vocalizing is usually done on the breeding ground.

Loons are awkward on land because their feet are set so far back on their bodies. In order to fly, they need a good deal of land from which to take off; larger loons need as much as a quarter-mile (400 meters) to get a good start. They are powerful flyers, though, and have been clocked at 60 miles per hour (97 kilometers per hour).

Loons are monogamous (having just one mate) and mate for life, but are quick to replace that mate should it get lost. Both sexes build the nest, and they often return to that same nest every year. Nests are made of wet vegetation on land, or as a floating mat. Usually two eggs are laid, and parents work together to incubate them, or keep them warm. Incubation lasts twenty-four to thirty days. Chicks depend on parents for food but start diving on their own at three days old. In six to eight weeks, they can fly. Adult loons have few predators, but chicks make a fine meal for snapping turtles, eagles, gulls, and crows.

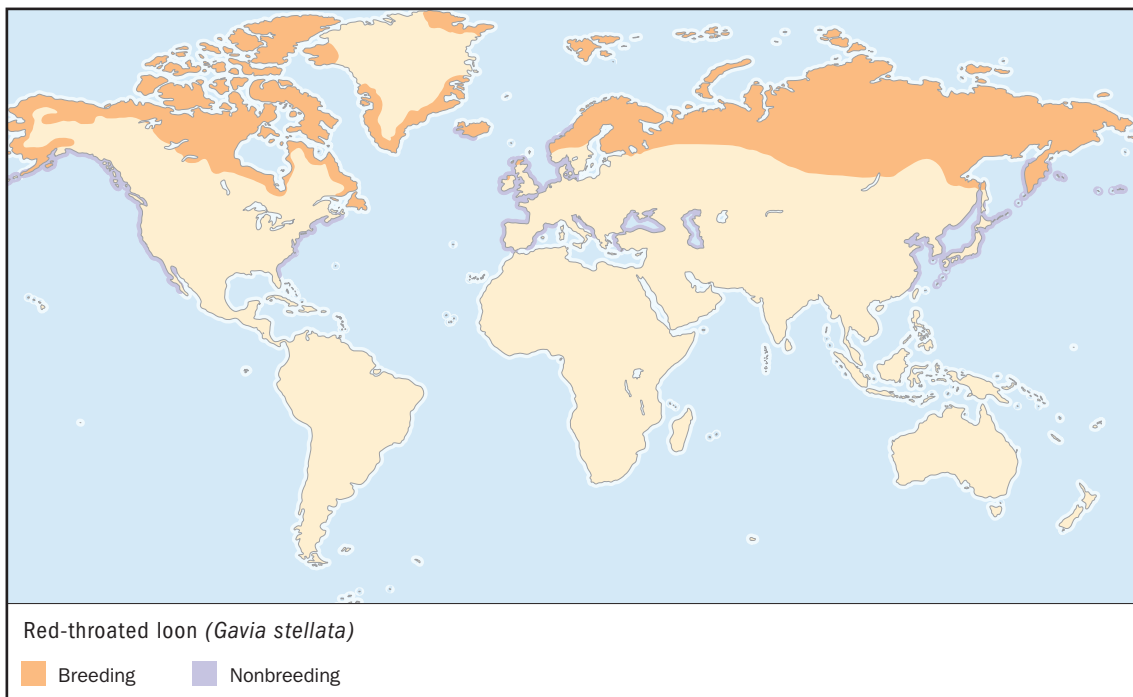
LOONS AND PEOPLE

People are attracted to loons because of the birds' vocalizations. Thousands of tourists flock to the northwoods each year to hear the loons. In this way, loons are beneficial to the tourist industry of these regions. On the flip side, the other human activities involved in these vacations, such as canoeing, are

threatening to the birds. When canoes hit the waters of Lake Superior, for example, the loons panic and over-react by abandoning their nests and any eggs in them. Often, they do not return, so the eggs die.

CONSERVATION STATUS

No species of loon is threatened.



RED-THROATED LOON

Gavia stellata

SPECIES ACCOUNTS

Physical characteristics: These loons measure anywhere from 20.8 to 27 inches (53 to 69 centimeters) in length and are the smallest of the loon family. In summer, the red-throated loon's head is gray, the neck is striped, and there is a bright red patch at the front of its neck. In winter, the head and neck are gray on top with a white underside. The bill is black, and the belly is white. The loon's back is always black.

Geographic range: Red-throated loons summer in the tundra and along arctic coastlines. Winters are spent in the Great Lakes region and along the northern coasts of the Atlantic and Pacific Oceans. The birds are also found in the Caspian, Black, and Mediterranean Seas.

Habitat: The red-throated loon is seldom seen far from saltwater. It can be found in estuary (combination of salt water and fresh water) waters at the mouths of rivers. Breeding takes place in freshwater lakes and ponds.



Red-throated loons usually lay two eggs, and one chick hatches first. If food is scarce, they may feed just the first chick, and the younger chick dies. (Illustration by Marguette Dongvillo. Reproduced by permission.)

Diet: These birds eat medium-sized fish, preferring marine (salt water) fish to freshwater food.

Behavior and reproduction: This is the only loon that can take off for flight from land because it doesn't require a running start from water. It is also the only loon species to vocalize in pairs, as mated couples do on breeding ponds. The call is a long, low-pitched whistle with individual notes interspersed, and both mates call at the same time.

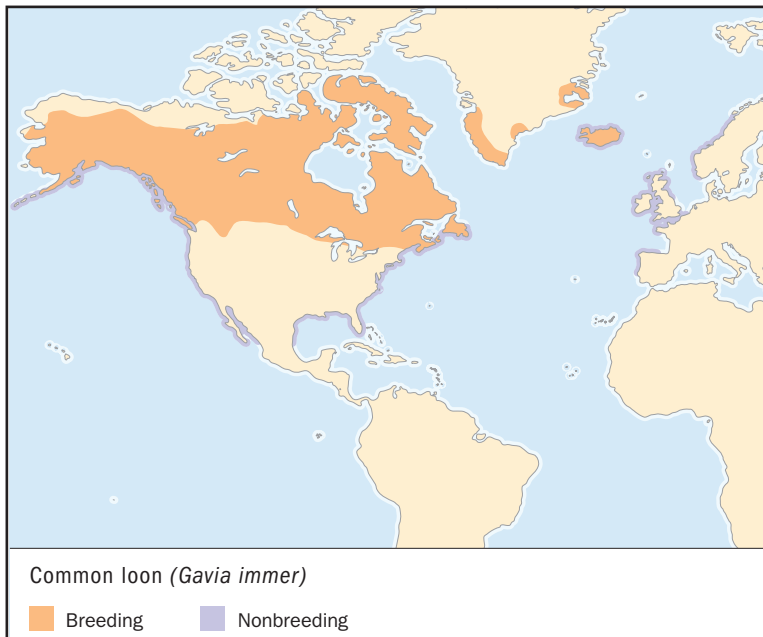
Although the male chooses the nest site, both parents build the nest from plant matter. Nests are made close to the water's edge because loons have difficulty walking on land. Mating, however, takes place on land. Breeding occurs May through September, and incubation lasts twenty-four to twenty-seven days. Two eggs are usually laid and incubation begins immediately. This means that the first egg is larger, so the first chick is usually the healthier of the two. When food is scarce, the

second-born chicks often starve to death.

Red-throated chicks are ready to breed between two and three years of age, and they have been known to live twenty-three years in the wild.

Red-throated loons and people: Inuit legally hunt around 4,600 loons of all species each year for food and skin. Red-throated loon skin is often used to make ceremonial dresses.

Conservation status: Though not threatened, these loons are vulnerable to oil spills and heavy metal pollution. The red-throated loon population is declining, though specific reasons are not known. ■



COMMON LOON

Gavia immer

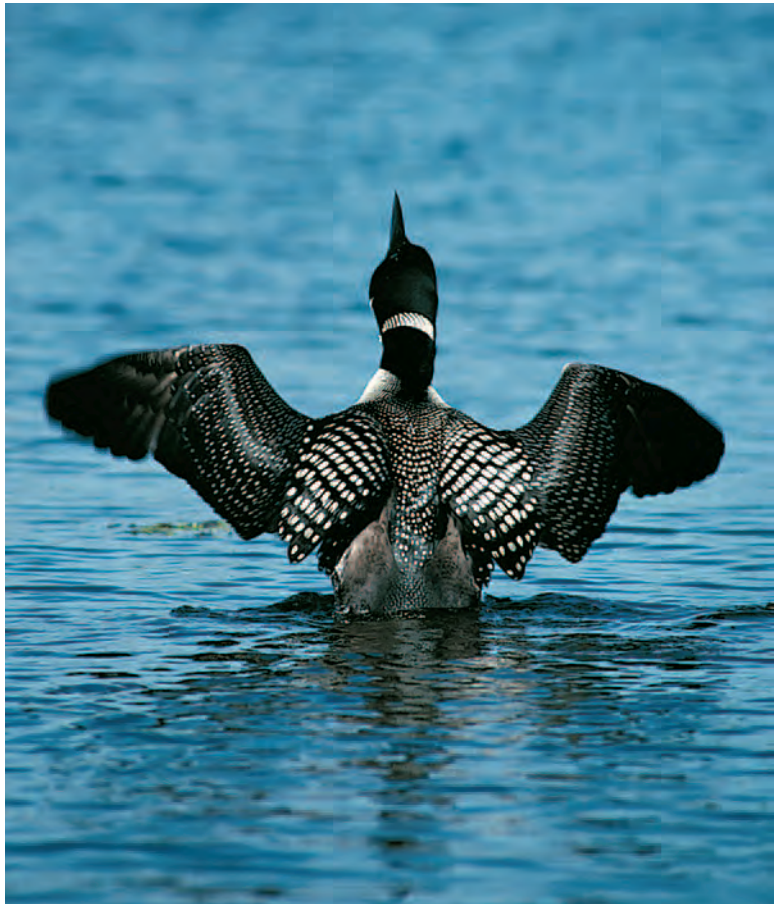
Physical characteristics: The common loon stands about 26.0 to 35.8 inches (66 to 91 centimeters) and weighs 5.5 to 13.4 pounds (2.5 to 6.1 kilograms). Underparts are white, upperparts are black with white checks and spots. The head is black, and the neck is black with white striping.

Geographic range: This species breeds throughout Alaska, Canada, northern New England, northern Midwest, and parts of Greenland and Iceland. It winters in the Pacific and Atlantic Oceans.

Habitat: Common loons breed in clear lakes and tundra ponds. The common loon winters mostly on coastal waters within 62 miles (100 kilometers) of shore. It also occasionally winters on inland lakes and rivers.

Diet: These birds eat mainly fish such as perch and bullhead as well as invertebrates such as snails and crayfish. They will eat vegetation when other food is scarce.

Common loons stretch, remove water, and signal with this motion. (© Gregory K. Scott/Photo Researchers, Inc. Reproduced by permission.)



Behavior and reproduction: During migration and winter, common loons are found in loose flocks or singly. They prefer large lakes because they require 100 to 650 feet (30 to 200 meters) for takeoff. Common loons are territorial on breeding grounds and will chase off intruders. Their call resembles a yodel, a series of repeated two-note phrases, and is used to defend territory.

Common loons nest farther south than other loons from May to October. They build their nests using vegetation at the edge of a lake. Two eggs are laid and incubated by both parents from twenty-seven to thirty days. Newborns can leave the nest at one day of age and are able to fly at eleven weeks. Chicks and eggs fall prey to gulls, crows, weasels, skunks, raccoons, and snapping turtles. Common loons live for up to thirty years in the wild.

Common loons and people: Human activity upsets the loon, and waterskiiers, boaters, and pets are taking their toll on the loon

population. The increased number of houses being built along lakeshores is destroying loon habitat. Loons are also being found with alarmingly high mercury levels in their bodies. The mercury comes from lead fishing tackle as well as pollution.

Conservation status: The common loon is not threatened, though many conservation efforts are underway to keep populations stabilized. ■

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GREBES

Podicipediformes

Class: Aves

Order: Podicipediformes

One family: Podicipedidae

Number of species: 22 species

monotypic order

CHAPTER

phylum

class

subclass

order

● **monotypic order**

suborder

family

PHYSICAL CHARACTERISTICS

Grebes stand anywhere from 8.7 to 29.9 inches (22 to 76 centimeters) tall and weigh between 3.5 and 56 ounces (100 to 1,600 grams). The appearance and color in both sexes of these diving birds are similar, though the female is usually smaller. Their coloration varies, depending on whether or not they are breeding. Their wings are rather short and skinny. Their eyes may be yellow, red, or brown, and their bills are short. Because their feet have adapted, changed over time, to swimming, they are unable to walk well on land and can do so only for short distances.

Although their weight remains basically the same throughout their lives, their body mass distribution changes on a yearly cycle. When flight is needed, breast muscle is built up. When frequent diving is required, leg muscle is developed. And when flight feathers are shed each year, huge quantities of fat are deposited because grebes eat feathers. Eating these feathers gives their stomachs a protective lining against the many parasites that inhabit the grebes' bodies. As many as thirty thousand parasites have been counted on one grebe.

GEOGRAPHIC RANGE

Grebes live throughout the world but not in the Antarctic or high Arctic regions where temperatures are frigid.

HABITAT

Grebes live in freshwater ponds and lakes as well as slow-moving rivers. Northern populations migrate, travel from

region to region seasonally, to inland lakes and coastal waters during winter months.

DIET

In addition to feathers, grebes eat many kinds of fish, including perch, herring, eels, minnow, pipefish, goby, and cod. They also eat water bugs, crayfish, shrimp, and snails.

Grebes are powerful divers and can feed just below the surface or in greater depths.

BEHAVIOR AND REPRODUCTION

Grebes like to sunbathe and preen, groom, themselves and spend a lot of time doing so. Many grebes have ten to twelve calls that they use, primarily during breeding season, while other grebes are almost completely silent year-round. Their vocalizations range from whistles to beeps to wails.

Grebes fly at night when moving between various regions. They sometimes fly in groups and loose flocks. The grebe is seasonally monogamous (muh-NAH-guh-mus), has only one mate each year. Nests are built by both parents on the water so that they float, but often they are attached to plant life. These birds build several other platforms besides the nest which they use for resting, mating, and sunbathing. Two to four eggs, or three to eight eggs at higher latitudes, are laid and incubated, warmed, by both parents for twenty-two to twenty-three days. After birth, both parents care for and feed the chicks, which take their first flights between six and twelve weeks of age. They are ready to breed at one year. Some species lay eggs two or three times each year.

Predators of the grebe, animals that hunt them for food, include weasels, mink, ferrets, crows, hawks, gulls, and pike. Grebes live to be anywhere from eleven to fifteen years old.



OIL SPILLS: WHAT'S THE BIG DEAL?

When oil tankers spill oil into the ocean, rivers, and bays, aquatic wildlife and the environment are harmed. Spilled oil floats on the surface of the water and spreads out into an "oil slick." Animals that pass through the slick can be seriously injured. Feathers lose the ability to repel water, and fur is no longer able to keep mammals warm. Also, animals swallow the poisonous oil as they attempt to clean themselves, and die.

The largest spill in the United States happened in 1989 when the *Exxon Valdez* spilled eleven million gallons of oil off the coast of Alaska. Two-hundred-sixteen thousand gallons (818,000 liters) of oil ended up on shore, affecting approximately 1,300 miles (2,090 kilometers) of shoreline.

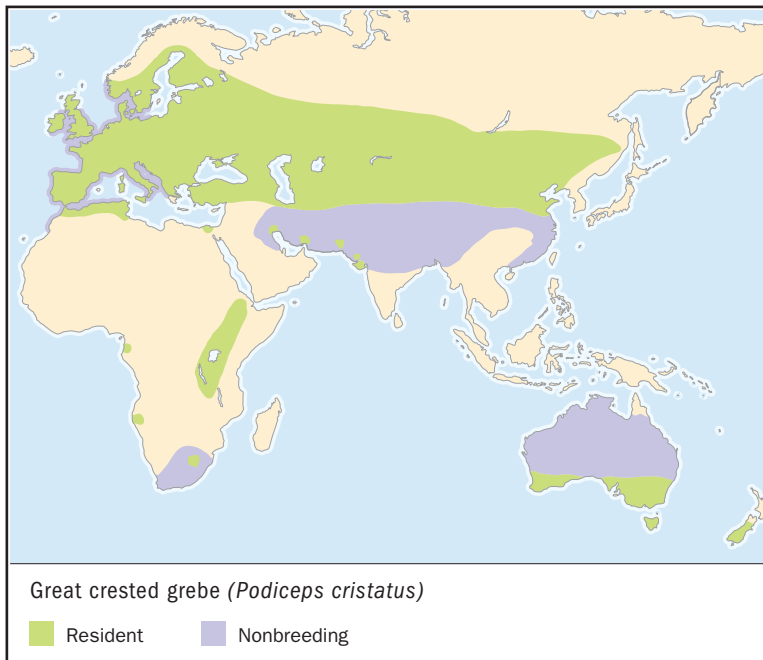
The Exxon Valdez Oil Spill Trustee Council estimates that the spill killed 250,000 seabirds, 2,800 otters, 300 harbor seals, 250 bald eagles, up to 22 killer whales, and billions of salmon and herring eggs.

GREBES AND PEOPLE

Though once hunted for their plumage, feathers, and as food, grebes are considered bad-tasting in most parts of the world today. In China, the little grebe's meat is used for medicine.

CONSERVATION STATUS

Although no species of grebe is immediately threatened, two species, the giant pied-billed grebe and Colombian grebe, became Extinct, died out, in the 1970s. The Alaotra grebe is listed as Vulnerable, facing a high risk of extinction in the wild. The numbers of the Madagascar grebe have declined recently to the point of concern, due primarily to habitat destruction and the introduction of exotic fish.



GREAT CRESTED GREBE

Podiceps cristatus

SPECIES ACCOUNTS

Physical characteristics: Great crested grebes are 18 to 24 inches (46 to 61 centimeters) tall and weigh between 1.25 and 3.3 pounds (0.57 to 1.5 kilograms). During breeding, the adult's crown is black while the sides of the head are white blending to a light brown fan at the back of the head. Their undersides are white. Nonbreeding adults have no fan. Immature birds are similar, but sport numerous black stripes on the side of the head. Their eyes are red and the bill is pink.

Geographic range: These birds live in Europe, in Asia south to the Himalayas, and in North Africa north of the Sahara Desert. They spend the winters in warmer coastal waters.

Habitat: Great crested grebes breed on large lakes and in brackish, slightly salty, waters. They can also be found in environments such as city parks.

Great crested grebes flee from danger by diving under water rather than taking flight.
(Illustration by Barbara Duperron.
Reproduced by permission.)



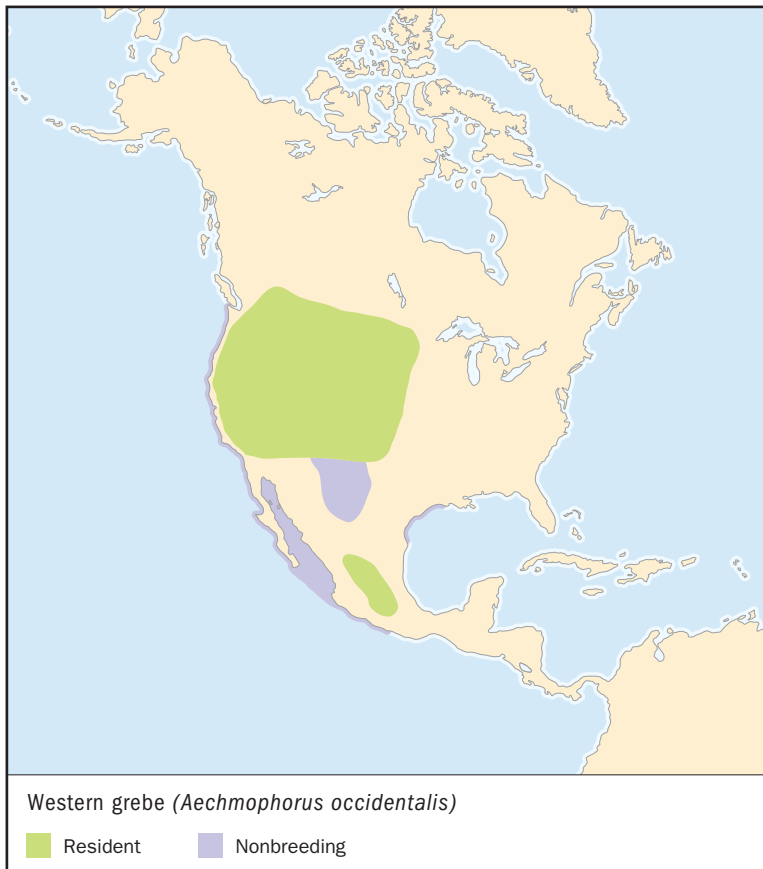
Diet: Great crested grebes eat mostly large fish, but also eat squid, frogs, snails, and other invertebrates, animals without backbones.

Behavior and reproduction: Great crested grebes can be found in groups of up to ten thousand, although they are also found alone or in pairs. This species participates in elaborate mating rituals. Nests are built on the water, and although females can lay up to nine eggs, they are more likely to lay between three and five eggs. Incubation lasts twenty-five to twenty-nine days. Parents carry their young on their backs for three to four weeks. Chicks are able to fly at ten weeks.

Great crested grebes flee from danger by diving under water rather than taking flight. They can live to the age of eleven years.

Great crested grebes and people: This bird was once extensively hunted for its feathers and as a result nearly became extinct in Europe in the 1800s.

Conservation status: Although once nearly extinct in Europe, this species has made an impressive comeback thanks to the eutrophication (yoo-troh-fih-KAY-shun), the aging process, of lakes—the lakes contain more food for the grebes as they age. Populations are stable in all ranges. ■



WESTERN GREBE *Aechmophorus occidentalis*

Physical characteristics: Western grebes stand 21.6 to 29.5 inches (55 to 75 centimeters) tall and weigh 1.8 to 4 pounds (0.8 to 1.8 kilograms). Females are smaller than males. The body is narrow, the neck and bill long. Breeding adults are black from the top of the head to below the eye. The rest of the top part of the body is blackish with sides being spotted with gray. Undersides are white. Nonbreeding adults are similar but with less contrast between the black/gray and white areas. Eyes are red and the bill is green.

Geographic range: Western grebes are found in central Mexico and western North America. They winter on the coast of Texas and the Pacific coast south to Baja California.

A pair of western grebes
“dancing” on the water as part
of their courtship (period before
mating). (© Phil Dotson/Photo
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permission.)



Habitat: Western grebes breed on lakes and marshes with large areas of open waters, both fresh and brackish. They like the reedy shores for building their nests. These birds winter on salt lakes or in coastal waters.

Diet: Western grebes eat almost nothing but fish. They often spike fish with their pointed bills. Western grebes can dive for periods of up to forty seconds.

Behavior and reproduction: Western grebes form colonies, sometimes up to several thousand birds. They have well-developed courtship displays, including the ability to “dance” on water in pairs. Females lay eggs just once each year, and the timing depends more on the availability of food than on the seasons. Females usually lay two to six eggs in nests that are 3 to 12 feet (2 to 4 meters) apart and built out of wetland vegetation. The nests are found in the protective environment of the reedy waters.

Incubation lasts from twenty-two to twenty-four days, and both parents raise the chicks and carry them on their backs. Chicks are independent at eight weeks.

Western grebes and people: These birds often fall victim to oil spills while wintering in the coastal waters. They also have had reduced breeding success in areas where insecticides used for agriculture wash into their wintering habitats.

Conservation status: Western grebes are not threatened. ■

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PELICANS AND OTHER FISHING BIRDS

Pelecaniformes

Class: Aves

Order: Pelecaniformes

Number of families: 5 families

order

CHAPTER

phylum

class

subclass

● **order**

monotypic order

suborder

family

PHYSICAL CHARACTERISTICS

The birds in the Pelecaniformes group are mostly seabirds, and they are some of the most easily recognized birds in the world. All of the birds in the five families have webbing that connects all four toes, although the frigatebirds (FRIGG-it-birdz) have very small webs. The largest birds in the group are the pelicans. The biggest pelicans weigh as much as 33 pounds (15 kilograms). The smallest birds are tropicbirds. Some of them weigh only 10.5 ounces (300 grams).

Many of the birds in this group have interesting bills. Everyone knows the pelicans with their enormous pouches. The Australian pelican has the largest bill of any bird—it is 20 inches (50 centimeters) long. Most of the other birds in the Pelecaniformes group have bills with serrated edges like the blade of a bread knife. These edges help the birds hold slimy fish. Almost all of the bills have a hook on the end. The hooks help tear apart the birds' prey. The anhingas (an-HING-guz) are the only exception. They have sharp, pointy bills that are less than 4 inches (10 centimeters) long.

All of these birds, except for the tropicbirds, have a bare skin pouch or throat sac. The pouches can be fluttered to help cool the birds. The pelicans' fish-catching pouches are the biggest ones. But when male frigatebirds are courting, they can blow up their pouches to look like big red balloons. The birds in this group also have air sacs under the skin that help cushion them when they plunge into the water.

The feathers of the birds in the Pelecaniformes order are not very colorful. Most of them are black, brown, or white. The birds in the cormorant family are unusual because their feathers are not waterproof and can get soaking wet. After swimming, the birds have to spread their wings to dry them in the sun. Although the birds in this group lack bright feathers, other parts of their bodies are surprisingly colorful. The eyes of some pelicans and cormorants are bright green or blue. Many of the birds have yellow, orange, blue, and red throat patches, feet, and bills. Some of the bare parts of the birds turn colorful just during breeding season.

GEOGRAPHIC RANGE

Since most of the birds in the Pelecaniformes order are seabirds, they can be found in oceans, at seashores, and on ocean islands all around the world. A few of the birds live inland near big lakes and rivers. Because they eat only water animals, none of them can live in dry areas. Most of the birds in this group prefer warm waters and avoid the coldest areas. But a few can be found in waters north of the Arctic Circle and in the oceans surrounding Antarctica.

HABITAT

Pelecaniformes depend on fish and other water animals for their food, therefore the habitats they prefer are oceans, seacoasts, rivers, and lakes. Gannets, boobies, tropicbirds, and frigatebirds fish in saltwater, while anhingas are more likely to find their food in freshwater. Some pelicans and cormorants are at home in saltwater, freshwater, and in tidal areas where the two kinds of water mix.

DIET

Water animals are the only prey these birds catch, and most of them eat only fish. A few of the birds also eat squid, shrimp and other crustaceans, jellyfish, carrion (mostly dead fish discarded by fishing boats), eggs and chicks of other seabirds, young turtles, and tadpoles.

Although all of the Pelecaniformes birds eat mostly fish, they have several different methods for catching them. Tropicbirds snatch flying fish from the air. Cormorants chase fish at high speeds underwater, propelled by their feet, until they can catch the birds in their beaks. Anhingas chase fish and use their bills as underwater spears to catch them. Gannets plunge into the water from as high as 100 feet (30 meters) to stun and kill their

prey. Some pelicans work as teams to drive fish into shallow water where they can easily catch them. And frigatebirds steal fish from other birds.

BEHAVIOR AND REPRODUCTION

Most of these birds feed during the day and spend the night in colonies of several different kinds of birds. Except for the gannets, the birds do not migrate long distances. Pelicans and cormorants move around when food gets scarce, but most of the birds stay in the same area year round. Even though many of them depend on the oceans for food, they usually stay near land.

At breeding time, the males and females show their interest in each other with a variety of courtship displays. Tropicbird pairs swoop and glide together in midair. Pelicans bow to each other and sway in unison. Male frigatebirds blow up their pouches to attract females, and boobies dance with their colorful feet.

When the birds have formed pairs, they crowd together at nesting places. They are more likely to nest in trees and bushes than most seabirds. But pelicans and boobies lay their eggs on the ground, and some tropicbirds nest on cliffs. The nesting areas are crowded because the birds all want to be as close as possible to the feeding areas. When fishing is good, they may only spend thirty minutes a day feeding. However they may spend more time flying from their nests to the fishing spots and back to their nests again.

Since Pelecaniformes usually nest so close together, each bird is constantly warning the birds nearby not to come too close. They wave their wings, poke their beaks at each other and make a lot of noise. Most of the birds can only croak or grunt, but tropicbirds have a shrill scream. The birds usually have plenty of time for arguing, because they spend such a short time feeding every day.

The females lay between one and six eggs. The parents take turns sitting on the eggs until they hatch in twenty-three to fifty-seven days. When the chicks hatch, they are naked and helpless. The parents regurgitate, spit up, food into their own mouths, and the chicks eat from their open bills. The young birds may take as long as four months before they learn to fly.

PELECANIFORMES AND PEOPLE

Pelicans and other birds in this group are the subjects of many legends and stories for children. Many of these birds seem

to enjoy the company of humans and follow their fishing ships and even rest on them. Farmers gather the droppings from seabird nesting sites to make fertilizers for crops. In the Far East, cormorants are trained to catch fish for their owners, and some peoples on South Pacific islands still use the long tail feathers of tropicbirds for decorating their clothing.

CONSERVATION STATUS

About one-third of the Pelecaniformes birds are under some kind of threat. Four species are listed as Endangered, facing a very high risk of extinction, or Critically Endangered, facing an extremely high risk of extinction. The problems the birds face include polluted water and loss of habitat for nesting. People have over-fished some parts of the ocean, leaving too few fish for the birds. Some people kill the birds that eat the fish they want for themselves. Some birds have naturally small populations, such as those that live on a few small islands and nowhere else. These birds can be wiped out by animals that are brought to the islands. For example, rabbits brought to some islands eat the plants that the birds need to shade their nests. That means fewer birds are able to raise young.

But there is good news, too. Birds in this group are being helped by people all over the world. In North America, the brown pelican was listed as endangered because of poisonous chemicals, such as dichlorodiphenyltrichloroethane (DDT) that got into their water. When people realized they were harming the birds, the poisons were outlawed. Now the pelicans have made a good comeback and are no longer listed as endangered in some parts of the United States.

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WHAT MAKES A GOOD SEABIRD?

Seabirds have many special body parts that help them live on the ocean. Their webbed feet are perfect for swimming. They have air sacs under their skin that make for a soft landing when they plunge into the water. Their long wings help them soar above the waves, and their eyes are good for seeing prey underwater. They have glands that get rid of extra salt, and other glands that supply them with oil to make their feathers waterproof. Seabirds have one more important feature, bills that are designed for grabbing slippery fish.

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family CHAPTER

TROPICBIRDS Phaethontidae

Class: Aves

Order: Pelecaniformes

Family: Phaethontidae

Number of species: 3 species

PHYSICAL CHARACTERISTICS

Tropicbirds are medium-sized seabirds. The males and females look similar, with long tail streamers, webbed feet, a yellow or red bill that curves downward, and long, pointed wings. They are between 29 and 40 inches (74 and 100 centimeters) in length, with their long tails accounting for about half of that length. The wingspan of the tropicbirds is 37 to 44 inches (94 to 112 centimeters), and they weigh between 10.6 to 26.5 ounces (300 to 750 grams). Their feathers are mostly white, sometimes with a little pink, and they have black wing markings and black marks at the eyes. Red-billed tropicbirds and the young of all three species have speckled feathers on their backs.

GEOGRAPHIC RANGE

Tropicbirds live in warm, tropical waters and breed on islands all across the oceans.

HABITAT

Tropicbirds build their nests on tropical islands. When they are not nesting, they fly over the ocean and rest on the water.

DIET

Flying fish are the main food of tropicbirds. They also feed on other kinds of fish and squid. They can catch flying fish in the air or fly into the water and catch prey near the surface. They usually search for food alone or in pairs, but they may also join large flocks of other seabirds.

phylum

class

subclass

order

monotypic order

suborder

▲ family



HURRICANE BIRDS

Although tropicbirds live year round in the tropics, they occasionally show up in surprising places. If they get caught in a tropical storm or hurricane, they may end up far to the north or south of their usual areas. For example, after a hurricane, they might be found as far north as Massachusetts. Often the birds have been injured by the storm, and they need to be cared for by a veterinarian or wildlife officer before they can be sent south and set free.

BEHAVIOR AND REPRODUCTION

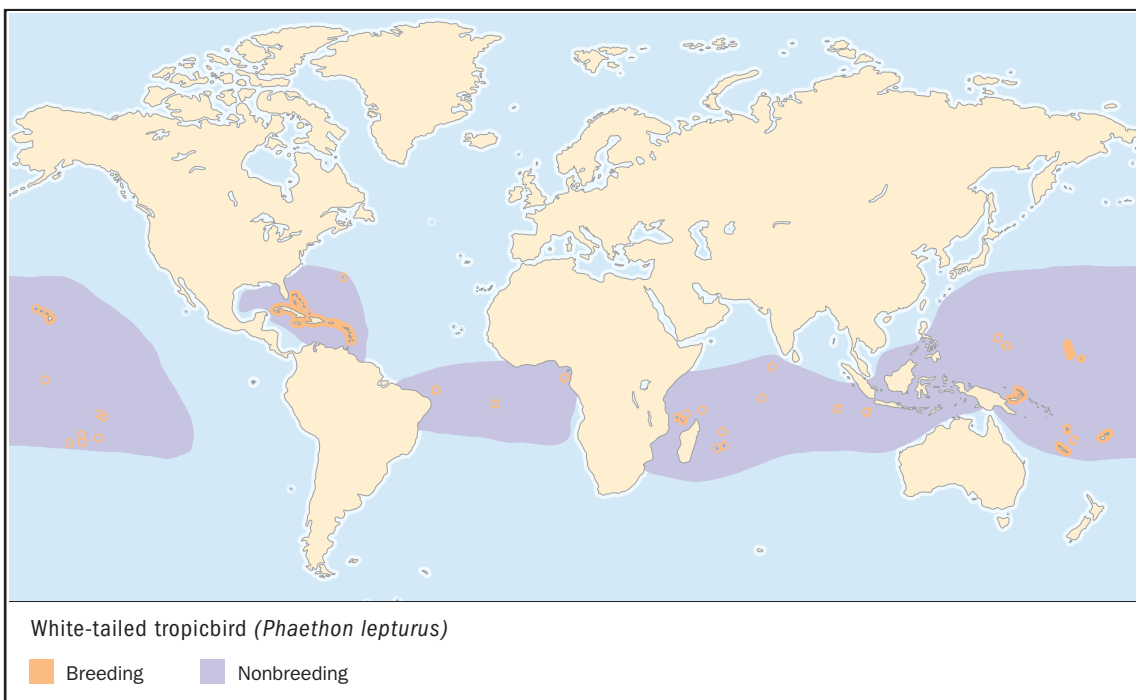
Tropicbirds spend more time at sea than other birds in their group, which includes frigatebirds (FRIGG-it-birdz), gannets, boobies, cormorants, and pelicans. They tend to stay far away from their breeding islands, flying above the water or sitting on it, unless they are courting or nesting. They usually nest on ledges of cliffs on islands. Sometimes they crawl into holes in rocky cliffs. They may also nest in trees or on the ground under bushes that protect them from sun and rain. Ground nests are usually part of a colony, a group of seabirds nesting close together. They lay only one egg. Both parents feed and care for the chick until it is ready to fly in eleven to fifteen weeks.

TROPICBIRDS AND PEOPLE

In the early 1900s many tropicbirds were killed and their feathers were sold for making hats. The long tail feathers are still used by native island peoples to decorate traditional clothing and headdresses. Some people eat tropicbirds, including their eggs and young. Tropicbirds attract ecotourists, people who travel to see wildlife and learn about the environment, and the money spent on boat tours, hotels, and food helps the local people who live near the birds.

CONSERVATION STATUS

On some islands, tropicbirds have lost their nesting habitat. Other birds get caught in big fishing nets at sea. Tropicbirds are sometimes harmed by oil spills because they spend so much time on the ocean. However tropicbirds are plentiful enough that they are not in danger of extinction, dying out.



WHITE-TAILED TROPICBIRD

Phaethon lepturus

SPECIES ACCOUNT

Physical characteristics: The white-tailed tropicbird is the smallest of the three kinds of tropicbirds. Male and female birds look alike. The adult is 29 inches (74 centimeters) long from bill to end of tail, and about half that length is the tail. Its wingspan is 37 inches (94 centimeters), and the bird weighs 11 ounces (312 grams). The tropicbird's feathers are mostly white, but it has black markings on the upper wings, and a black eye-stripe. It has a long white tail with a black stripe on top and a down-curved bill that is orange or red-orange. It has short legs and its feet are webbed. Since the tropicbird's legs are set far back on its body, it is a good swimmer, but it is awkward on land. Tropicbirds do not have bare skin pouches on their throats the way pelicans and other birds in their group do.

Geographic range: White-tailed tropicbirds nest on tropical ocean islands, including the Hawaiian Islands. When they are not nesting,



Except when they're nesting on tropical islands, white-tailed tropicbirds spend their lives flying over the ocean or sitting on the water. (Illustration by Patricia Ferrer. Reproduced by permission.)

they are rarely seen near land. Instead, they spend the rest of their lives flying over the ocean or sitting on the water.

Habitat: The islands these birds nest on are all in warm tropical areas. The habitats they prefer are rocky cliffs where land predators are not able to reach them. They go on long trips over the ocean, as far as 75 miles (120 kilometers) from the islands while searching for fish. When they are not nesting, they stay far from the islands and continental shorelines. They are usually found in water with warm temperatures between 74.8 and 76°F (23.8 and 24.9°C).

Diet: The main foods of white-tailed tropicbirds are flying fish and squid. They also eat other kinds of fish. Tropicbirds can catch and eat rather large fish for their size, up to 18 percent of their body weight. That would be like a 100-pound, or 36-kilogram, person eating the meat in 72 hamburgers. The birds usually plunge into the water from the air, but they are not deep divers. They find their food near the surface of the water. They can also catch flying fish in the air.

Behavior and reproduction: White-tailed tropicbirds are excellent fliers and can stay in the air for a long time. When they are flying, they have a rattling call. They are built for life on the ocean, and are clumsy on land. Their legs are set far back so they shuffle along on their breasts and push themselves with their wings. They cannot stand upright and fall forward on their bellies. Sometimes they stab their bills into the ground and drag themselves forward.

Before breeding begins, many pairs of white-tailed tropicbird hover over the water near the nest site. They call, "kyep-kyep," and flap their wings in unison. They may fly higher than 300 feet (94.4 meters). The top bird in a pair sometimes hangs its long tail down onto its mate below. When one bird in a pair flies to a nest site, the other one follows.

White-tailed tropicbirds choose nest sites that are out of the direct sun. They like crevices in rocks or ledges under overhanging rocks. They also nest on sandy spots under bushes. The nest is just a shallow scrape in the ground. The birds that are able to use holes in rocky cliffs for their nests are quite safe from predators. The birds nesting on the ground try to defend their nests from rats and other predators with harsh screams and sharp pecks.

The female bird lays one egg, and the parents take turns keeping it warm. When white-tailed tropicbirds hatch, their bills are a bluish color. The parents regurgitate, spit up, food into their own mouths, and the chicks eat from their open bills. Young birds grow speckled feathers on their backs, and their bills turn yellow. They leave the nest before they are three months old, and they do not practice flying before they leave.

White-tailed tropicbirds and people: Bird watchers sometimes travel thousands of miles to see white-tailed tropicbirds. They also have a loud, shrill scream that reminded sailors of the whistle blown by a ship's officer. The officer was called a bosun or boatswain. That is how the bird got the nickname bosun bird.

Before 1880 on the island of Bermuda, white tropicbirds were hunted to supply hat-makers with feathers. When the birds became scarce, the birds became a protected species. The tropicbird is considered a national bird of Bermuda and its picture appears on postage stamps and on the 25-cent coin.

Conservation status: On many islands, white-tailed tropicbirds have lost nesting habitat because of development on their former nest sites. But they are still the most common of the three kinds of tropicbirds, and they are not in danger of extinction. ■

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family CHAPTER

FRIGATEBIRDS

Fregatidae

Class: Aves

Order: Pelecaniformes

Family: Fregatidae

Number of species: 5 species

PHYSICAL CHARACTERISTICS

Frigatebirds (FRIGG-it-birdz) are unusual seabirds. Their feathers are not waterproof, so they try to avoid getting them wet. They have mostly dark feathers, although many frigatebirds, especially the females and young ones, have white feathers on their breasts, and some young birds have white heads. The birds also have short legs, webbed feet, forked tails, and the males have an inflatable pouch on their throats.

Frigatebirds have extremely long, pointed wings. In fact, they have the largest wings in proportion to their weight of any other bird. They also have exceptionally strong breast muscles that work together with their wings to make them powerful, acrobatic fliers.

Female frigatebirds are somewhat larger than the males. The birds are between 30 and 44 inches (75 and 112 centimeters) long from their bills to the end of their tails, and their wingspan is between 69 and 91 inches (176 and 230 centimeters). They weigh up to 3.3 pounds (1.5 kilograms), and almost half of their body weight consists of breast muscles and feathers.

GEOGRAPHIC RANGE

Magnificent frigatebirds fly above the warm ocean water and breed on tropical and subtropical islands all around the world. The other four species of frigatebirds are more rare, and each species breeds on only a few remote islands.

phylum

class

subclass

order

monotypic order

suborder

▲ **family**



SKY PIRATES

Frigatebirds usually catch their own meals, but they are famous for the way they steal food from other birds. In fact, they were named after the fast frigate ships used by pirates who robbed other ships at sea. When a frigatebird notices that another seabird has caught a fish, it often dives at the seabird like a fighter jet and jabs it until it drops the fish. If the seabird has already swallowed its meal, the frigatebird may grab it by the neck, tail, or wing and dangle it until it coughs up its load. Instantly, the frigatebird swoops down and snatches its free lunch.

HABITAT

Frigatebirds breed in colonies with other frigatebirds on tropical islands. The warm water near their islands is about 77°F (25°C). They choose islands that are near water with plenty of flying fish, fish that jump and glide in the air before falling back into the water.

DIET

Flying fish are the main diet of frigatebirds. They also snatch fish and other animals at the sea's surface. They attack other seabirds in the air and steal their prey. Frigatebirds sometimes eat the eggs and young of other seabirds, as well as fish scraps thrown overboard by fishing boats.

BEHAVIOR AND REPRODUCTION

During the day, frigatebirds spend most of their time in the air. They usually search for food around their home islands, but they sometimes fly far out over the ocean when they are not breeding. They may breed at any

time of year. Male birds sit at a nest site and blow up their throat pouches to attract females. They prefer to build their nests in low shrubs or trees, but sometimes they put them on the bare ground. They lay just one egg, and the young bird learns to fly between the age of five and seven months. After that, it is still dependent on its parents for food for another two to six months.

FRIGATEBIRDS AND PEOPLE

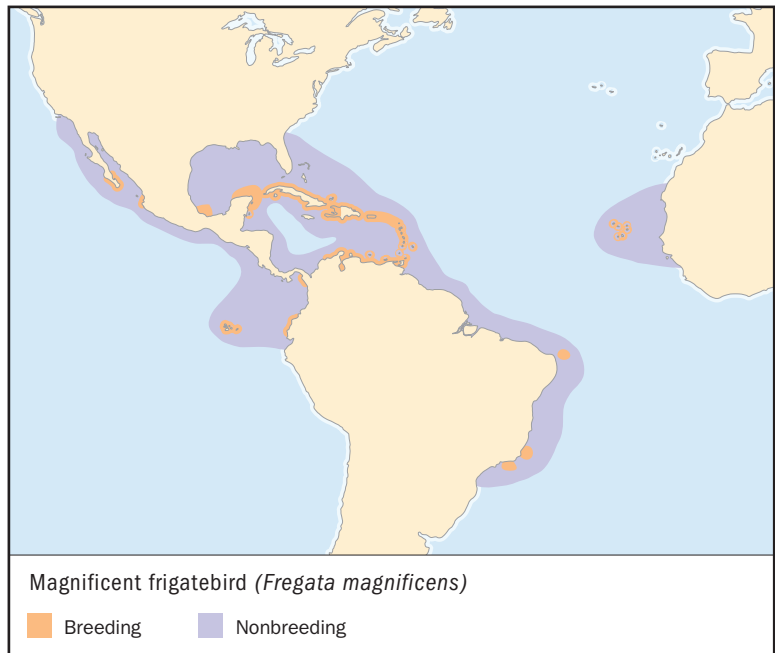
People have used to use frigatebirds to carry messages between islands in the South Pacific. Now the birds are mainly a tourist attraction.

CONSERVATION STATUS

The Ascension frigatebird is listed as Critically Endangered, facing an extremely high risk of extinction, and the Christmas frigatebird is considered Vulnerable, facing a high risk of extinction. Both lost much of their habitat when people devel-

oped the islands where they breed, and they do not like to be disturbed by people who come to watch and photograph them close-up. But their biggest trouble is the variety of mammals brought to the islands by people. Rats, pigs, goats, and pet cats eat the frigatebirds' eggs and chicks, and they destroy the plants the birds need in breeding areas.

SPECIES ACCOUNT



MAGNIFICENT FRIGATEBIRD *Fregata magnificens*

Physical characteristics: Magnificent frigatebirds are the largest of the frigatebirds, with a length of 41 to 44 inches (104 to 112 centimeters) from bill to tail, and they weigh between 3.1 and 3.3 pounds (1.4 and 1.5 kilograms). Their straight gray bills are hooked at the end. They have such short legs that they cannot walk on land or swim on the water, but their strong claws help them cling to the branches where they roost and build their nests. The adult female has a white breast and some brown feathers on the top of her wings. The adult male has a mostly black body with a red throat sac.

No other birds in the world have wings as large in proportion to their weight as magnificent frigatebirds. Their wingspan is 85 to 91 inches (216 to 231 centimeters). The birds' strong breast muscles work together with their wings, making them able to fly fast and soar high, and their forked tails help them steer.

Geographic range: Magnificent frigatebirds breed on tropical and subtropical islands in the Atlantic and Pacific Oceans near North and



Magnificent frigatebirds prefer to live on tropical islands with trees and bushes for nesting surrounded by an ocean full of flying fish. (Illustration by Patricia Ferrer. Reproduced by permission.)

South America. Some also breed in mangrove trees along the coasts. Colonies of the birds are also found off the western coast of Africa. They usually roam the waters near their home islands, but they sometimes fly far out over the ocean.

Habitat: The ideal habitat for a colony of magnificent frigatebirds is a tropical island with mangroves or other trees and bushes for nesting surrounded by an ocean full of flying fish.

Diet: Magnificent frigatebirds feed on flying fish that they catch in the air up to 6 or more feet (1.8 or more meters) above the surface of the ocean. They also eat other small fish, as well as squid, young turtles, crabs, and jellyfish. Frigatebirds snatch this prey from the surface of the water. They like the eggs and chicks of other seabirds when

they can get them, and they eat the fish parts discarded by fishing boats. Sometimes they steal the prey of other seabirds in midair.

Behavior and reproduction: Magnificent frigatebirds never land on water, except accidentally. Their feathers are not waterproof and quickly become wet and heavy in the water, making it difficult for them to take off. Instead, they spend their daytime hours in the air, and they perch in bushes or on tree branches when they roost each night. They are exceptionally skillful at catching fish and other sea animals while flying right above the surface of the water. Strong winds do not bother them—they can even ride out a hurricane in flight.

At breeding time, the males gather in trees or bushes about pecking distance from each other. It takes the males about twenty-five minutes to blow up their red “balloons.” They do it by sucking air into the wrinkled red pouches on their throats. Then they shake their wings and rattle their bills. The females fly overhead and check them out. Then, each one chooses a male as her mate. The pairs build their flat nests of twigs, sticks, and grasses right on the spots where the males were showing off. The males often steal nest material from each other or from other seabirds nesting nearby. The birds are noisy at the nest site, although they are quiet at sea.

Each female lays just one egg, and she will take care of this young bird for more than a year. For about two months, the parents take turns sitting on the egg. The young bird is naked and helpless when it hatches. But soon the chick starts begging loudly to be fed, and it eats food that the parents regurgitate (re-GER-jih-tate; spit up). Before the chick is three months old, its father leaves. After that, the female continues to feed the young bird long after it learns to fly. Young frigatebirds practice catching food on the wing by dropping feathers and seaweed. It takes them a long time to learn how to feed themselves. Females breed every other year, and young birds are ready to breed by the age of seven.

Magnificent frigatebirds and people: These birds have become a favorite of bird-watching tourists, and the money the tourists spend on boat tours, hotels, and food helps the local people who live near the birds.

Conservation status: Magnificent frigatebirds have suffered from loss of habitat at many of their breeding places. Fishing boats have overfished some of the ocean areas where the birds used to find their food. However, the birds are not in danger of extinction (dying out). ■

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CORMORANTS AND ANHINGAS

Phalacrocoracidae

Class: Aves

Order: Pelecaniformes

Family: Phalacrocoracidae

Number of species: 40 species

family

CHAPTER

phylum

class

subclass

order

monotypic order

suborder

▲ family

PHYSICAL CHARACTERISTICS

The thirty-six species of cormorants are sleek, long-necked, dark waterbirds. They are good at flying and swimming, but they are clumsy when walking. Their length is between 19 and 40 inches (48 and 102 centimeters) from their bills to the end of their tails. Some weigh just 1.5 pounds (0.7 kilograms) and others weigh up to five times as much: 7.7 pounds (3.5 kilograms). Their long, thin, hooked bills have a saw-tooth edge. The Galápagos cormorant is unusual because it has stubby wings and cannot fly.

The four species of anhingas (pronounced an-HING-guz) are similar to the cormorants, but they have even longer necks. In some parts of the world, they are called darters. Their bills are sharply pointed (not hooked) and bright yellow. Their length from their bills to the end of the tails is between 34 and 36 inches (86 and 92 centimeters). They do not have oil glands for waterproofing their feathers.

GEOGRAPHIC RANGE

Cormorants are spread widely across the worlds' continents, except for desert areas and the very coldest regions. The birds that nest in the coldest regions migrate to warmer places in winter. Anhingas live in the warm, tropical and subtropical areas of North and South America, Africa, Asia, and Australia.

HABITAT

Cormorants and anhingas live in freshwater wetlands, swamps, lakes, rivers, and estuaries (wet areas near the ocean

where freshwater and saltwater mix). Anhingas that live near the ocean stay close to shore, cormorants fly out over the coastal waters.

DIET

Besides fish, these birds also eat other water animals such as frogs and crayfish. Cormorants snatch their prey with their bills, and anhingas usually spear their food. After swimming, the birds sit on perches and spread their wings in the sunshine.

BEHAVIOR AND REPRODUCTION

Usually cormorants and anhingas breed in colonies. They build rather messy nests on tree limbs or on cliff ledges. Both parents sit on the eggs and care for the young. When they are not breeding, they often flock together for feeding and for roosting at night.

CORMORANTS, ANHINGAS AND PEOPLE

Big flocks of cormorants are considered pests by some people because the birds can be messy and they eat fish. In South America, farmers gather the cormorants' droppings for fertilizer. In Japan and China, some people use cormorants to help them fish. Bird watchers sometimes travel long distances to see rare cormorants and anhingas.

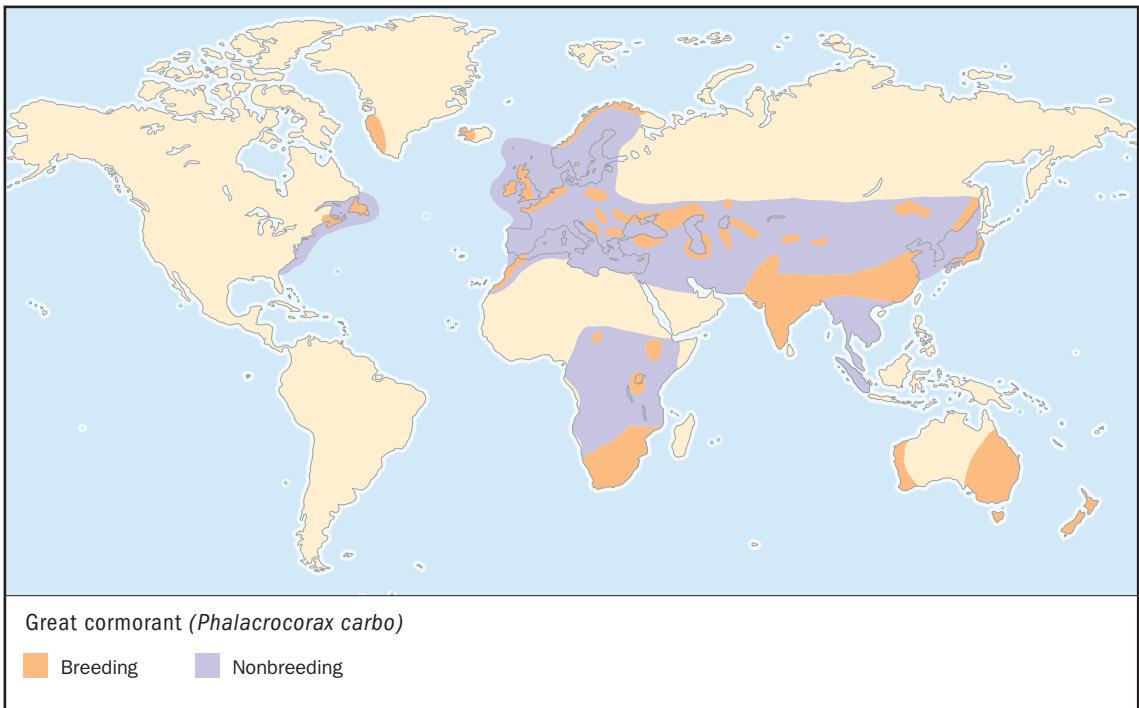
CONSERVATION STATUS

One species of anhinga and fourteen species of cormorants are at risk. The Pallas's cormorant has recently become Extinct (died out). Of the fourteen cormorant species, two are listed as Endangered.



FISHING WITH BIRDS

Some people in Asian countries use cormorants to help them catch fish. The birds are trained to behave like fishing machines. The fisher ties a piece of grass around a trained cormorant's neck to keep it from swallowing the fish it catches. After the bird jumps into the water and catches a fish, the fisher puts a pole in the water for the bird to grab with its feet. The fisher lifts the bird out and removes the fish. After a while, the fisher unties the grass from the bird's neck and lets it catch and eat all the fish it wants.



SPECIES ACCOUNTS

GREAT CORMORANT *Phalacrocorax carbo*

Physical characteristics: The great cormorant is the largest of all thirty-six species of cormorants. Its average length is about 37 inches (93 centimeters) and it weighs as much as 8 pounds (3.6 kilograms). Male and female birds look alike. Adult birds have glossy black feathers and a yellow throat pouch. In breeding season, the adults grow some white feathers on their necks and at the top of their legs.

Geographic range: Great cormorants are the most widely spread of all cormorant species. They are found on the east coast of North America, and in temperate areas in Africa, Asia, and Australia where the climate is moderate or cool. They usually spend the winter near their breeding places.



*The great cormorant is the largest of all cormorants, and the most widespread.
(Illustration by Emily Damstra.
Reproduced by permission.)*

Habitat: In North America, great cormorants nest mostly along the shore of the Atlantic Ocean and feed in coastal waters. But in other parts of the world, they are also an inland bird. They breed in many kinds of wetlands, including marshes and mangrove swamps, lakes, rivers, and reservoirs.

Diet: Great cormorants eat mostly small fish, but they occasionally catch other water creatures such as crayfish, squid, frogs, salamanders, snakes, and insects. They catch most of their prey underwater.

A cormorant usually swims along the surface and dips its head in and out of the water, looking for prey. If it spots something to eat, it dives in with its wings held firmly against its body. It pushes itself along with its webbed feet, and its heavy feathers help it sink down quickly. When the bird grabs a fish, it swims to the surface and swallows it headfirst. Later, it will regurgitate (spit up) the bones and scales. It leaves the water as soon as it has finished eating.

Behavior and reproduction: Cormorant feathers are not fully waterproof and become very heavy when wet. Colonies of cormorants can often be seen standing around with their wings spread as they dry their feathers.

Great cormorants nest in colonies on rocky cliffs along seacoasts or in trees near lakes and rivers. The male chooses the site and waves his wings. When a female approaches, the birds greet each other with courtship displays. The male brings nesting materials to the female, and she builds a big nest. She lays three or four eggs, and the adults both sit on them and care for the chicks. By the time the young birds are eight weeks old, they can fly as well as adults and take care of themselves.

Great cormorants and people: In most places, they are not of great importance to humans. In Asia, some great cormorants are trained to help people catch fish.

Conservation status: Great cormorants are widespread and plentiful. They are not in danger of extinction. ■



AMERICAN ANHINGA

Anhinga anhinga

Physical characteristics: With its long, snakelike neck, yellow pointed bill, and a tail that can be fanned out like a turkey's tail, the American anhinga is easy to recognize. Its average length is about 34 inches (85 centimeters) from bill to tail, and it weighs about 2.7 pounds (1.2 kilograms). The male is an overall black color with

silvery-white markings on the upper wings. The female has a brown head, neck, and upper chest.

Geographic range: American anhingas live in the southeastern part of the United States and in Mexico, Central America, and the northern two-thirds of South America.

Habitat: American anhingas usually live in warm wetlands, especially cypress swamps, and along the edges of wooded ponds, lakes, and slow-moving rivers. They need to have logs or tree branches nearby where they can sit in the sun to dry their feathers.

Diet: An anhinga usually catches fish, crayfish, and frogs by waiting for them to swim nearby underwater and spearing them with a lightning-fast jab of its sharp bill. Then, with the flick of its head, it tosses the prey into the air, catches it, and swallows it headfirst.

Behavior and reproduction: Unlike cormorants, anhingas soar high on outstretched wings. They often feed alone, but at night they roost with other birds in a colony. American anhingas sometimes nest in trees and bushes along with herons and cormorants. The male chooses a nest site and performs a variety of courtship displays, including wing waving and bowing. When a female joins him, she builds the nest with sticks brought by the male. She lays between one and five eggs, and both parents sit on the eggs and care for the young.

American anhingas and people: People are fond of watching this bird, especially the way it tosses fish into the air and catches them. Some call it the “water turkey” because of its tail. It is also called the “snakebird” because of the way it swims with just its neck and head above water. Bird-watching tourists spend money on boat tours, food, and hotels, which helps the local people who live near the birds.

Conservation status: American anhingas are not in danger of extinction. ■

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family CHAPTER

BOOBIES AND GANNETS

Sulidae

Class: Aves

Order: Pelecaniformes

Family: Sulidae

Number of species: 9 species

PHYSICAL CHARACTERISTICS

Boobies and gannets are large seabirds with long, pointed wings, cone-shaped bills, forward-facing eyes, and long necks and tails. Their length is between 25 and 39 inches (64 to 100 centimeters) from their bills to the end of their tails. They are strong fliers and plunge divers—boobies and gannets hit the water headfirst from high in the air in search of fish, and have air sacs under the skin that cushion them when they hit the water.

GEOGRAPHIC RANGE

Boobies and gannets are spread widely over the oceans of the world. Boobies are found mostly in warm tropical or subtropical waters, while gannets usually live in more temperate, cooler regions.

HABITAT

Gannets and boobies live mostly at sea and nest on offshore islands. They usually place their nests on flat ground or on the sides of cliffs. On tropical islands, some also build nests in trees or bushes.

DIET

Boobies and gannets feed mostly on schools of fish in ocean waters. Boobies also catch flying fish and squid. They plunge into the water, and they often swallow their prey before swimming back to the surface. By swallowing the fish underwater, they avoid being pestered by gulls and frigatebirds that might try to steal their catch.

phylum

class

subclass

order

monotypic order

suborder

▲ family



FEATHER BUDDIES

Gannets depend on having smooth wing and tail feathers for their tricky flying, and they need well groomed feathers in order to stay warm in cold water. A gannet fixes its messed-up feathers by running them through its beak. But how can it smooth the feathers on top of its head? One solution is to scratch them with its feet. But during nesting time, gannets have a better solution. Pairs of gannets take turns smoothing the feathers on each other's heads. It is a great way to keep their feathers in shape, and it is also their way of saying, "We belong together."

BEHAVIOR AND REPRODUCTION

These birds are very sociable and nest close together in large colonies. They have developed a lot of different courtship and pair-bonding displays that the pairs use to say that they belong to each other. The birds hardly ever fight, even though they are so near to each other. Instead, they have displays that tell close-by birds to keep their distance.

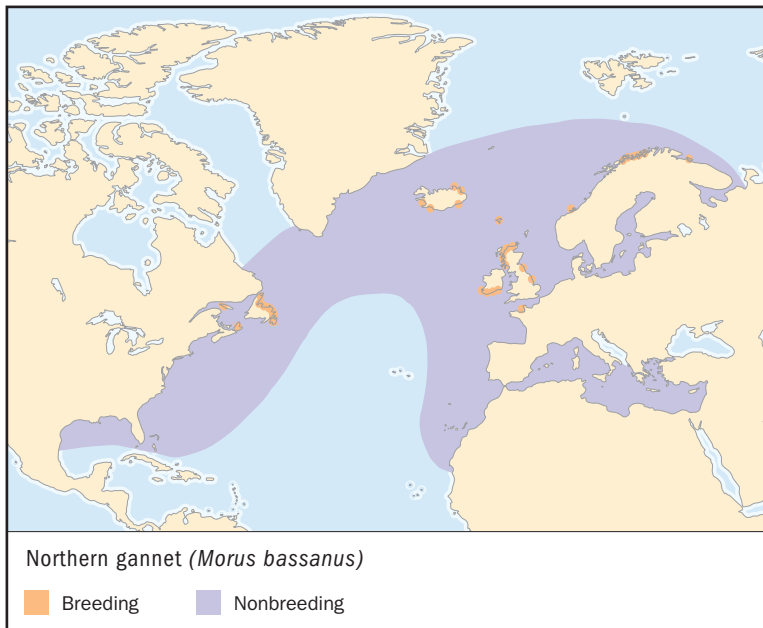
Almost all of these birds lay their eggs right on the ground. The two booby species that use trees and bushes build stick nests. Most of these birds lay only one egg. A few lay two or three, but sometimes only one survives. The parents take turns keeping the eggs warm by wrapping their webbed feet around them, and both of them care for the chicks until they are on their own.

BOOBIES, GANNETS, AND PEOPLE

Over the centuries, boobies and gannets and their eggs have been an important source of food for people when the birds were nesting. Some of the birds' droppings were collected and used for fertilizer on farms, often disturbing the birds on their nests. People still eat the birds on some tropical islands, and bird-watchers enjoy them worldwide.

CONSERVATION STATUS

Abbott's booby is listed as Critically Endangered, facing an extremely high risk of extinction, dying out. It lives only on Christmas Island, where it lost much of its habitat when nesting trees were cleared. The cape gannet is listed as Vulnerable, facing a high risk of extinction, because it has only six breeding colonies. The other gannets and boobies are not in danger of extinction, but many would be better off if their island habitats were protected.



NORTHERN GANNET

Morus bassanus

SPECIES ACCOUNTS

Physical characteristics: The northern gannet is the largest of the three species of gannets. Its feathers are mostly white, with a light rusty color on the back of its head. Northern gannets are between 34 and 39 inches (87 and 100 centimeters) long from their beaks to the end of their tails, and their wingspan is 65 to 70.9 inches (165 to 180 centimeters). Young gannets are mainly dark brown, with feathers gradually lightening until they get their white adult feathers in their fourth year.

Geographic range: Northern gannets breed on offshore islands in the northern Atlantic Ocean. In winter they move south to warmer waters along eastern North America and western Europe and Africa. Some spend the winter in the Mediterranean Sea.

Habitat: Most northern gannets breed on cliffs or flat ground on offshore islands, but some also breed along the rocky shores of continents. When they are not breeding, they spend the rest of the year flying over the ocean, sitting on the water, or diving in to catch fish.



Northern gannets nest very close to each other, but avoid fights by using displays that tell other birds to stay away. (© Hugh Clark/Photo Researchers, Inc. Reproduced by permission.)

Diet: Northern gannets are seabirds that feed mostly on schools of small fish such as herring. They usually plunge-dive headfirst into the ocean, sometimes from more than 100 feet (30 meters) above the water. Just before entering the water, they fold their wings backward alongside their bodies for a smooth entry. Gannets often hunt in big groups of as many as 1,000 birds. Sometimes northern gannets follow fishing boats and snatch the fish parts that are tossed into the water.

Behavior and reproduction: These birds usually stay with their partners for life, and they meet every year at the same nest site. When they meet, they greet each other with many different courtship displays. For example, they stand face to face with their wings out. Then they knock their bills together and bow to one another.

The birds make flat nests of seaweed and grass glued together with their droppings. The nests are crowded together, but they are spaced just far enough apart so that the birds can't peck each other. Each female lays one egg, and both parents care for the chick. The young bird grows amazingly fast, and by the time it is two months old, it may weigh 50 percent more than its parents. At the age of three months, the chick jumps from its nesting ledge after its parents desert it. The young northern gannet stays at sea the first three years of its life, coming to land only to breed.

Northern gannets and people: Humans used to take chicks for food, but in most places that has stopped. Northern gannets attract a lot of birdwatchers because of their huge nesting colonies and their amazing skill at diving.

Conservation status: Northern gannets are not in danger of extinction. Fishing boats that take large numbers of fish in areas where gannets feed are a threat to the birds. ■



BLUE-FOOTED BOOBY

Sula nebouxii

Physical characteristics: These birds are famous for their bright blue webbed feet. They are large seabirds with long, pointed bills, wings, and tails. Their length is between 29.9 and 33.1 inches (76 and 84 centimeters) from their bills to the end of their tails, and their wingspan is about 60 inches (152 centimeters).

Geographic range: Blue-footed boobies live in cool Pacific waters off the coast of northwest Mexico and southward to the coasts of Peru in South America. They are also found on the Galápagos Islands.

Habitat: Blue-footed boobies breed and roost along rocky coasts on cliffs and small islands. They spend their days at sea in cool waters where there are plenty of fish.



Blue-footed boobies keep their eggs warm with their feet, and also protect them from the sun so they do not get too hot. (© Andrew Martinez/Photo Researchers, Inc. Reproduced by permission.)

Diet: Blue-footed boobies feed on fish near the shoreline. They usually fly out in groups from the roosts where they spent the night. When they spot a school of fish below, one booby after the next plunges into the water. Other groups of boobies often see them diving from far away, and they join in the feast. Sometimes they catch flying fish near the surface.

Behavior and reproduction: Male blue-footed boobies have some amusing courtship displays. They march around in a high-stepping dance, showing off their blue feet. They nest on the ground, and the female usually lays two eggs. Then the parents keep the eggs warm with their feet. After they hatch, the young boobies are fed by their parents for more than five months.

Blue-footed boobies and people: The name “booby” comes from the Spanish word *bobo*, which means “stupid or foolish.” Sailors long ago noticed that these birds were not afraid of humans, and thought the birds were foolish for letting them grab them and eat them.

Conservation status: Blue-footed boobies are not in danger of extinction. ■

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PELICANS

Pelecanidae

Class: Aves

Order: Pelecaniformes

Family: Pelecanidae

Number of species: 7 species

family

CHAPTER

phylum

class

subclass

order

monotypic order

suborder

▲ family

PHYSICAL CHARACTERISTICS

There is nothing ordinary about pelicans. The enormous pouches under their long, hooked bills make them easy to recognize. In fact, the Australian pelican may have the longest bill of any bird. Pelicans are also among the heaviest flying birds in the world. They weigh as much as 33 pounds (15 kilograms), and their length is between 41 and 74 inches (105 and 188 centimeters) from the tip of their bills to the end of their tails. They also have long necks and webbed feet. Except for the brown pelican, most of the birds in the pelican family have white or light gray feathers with black wingtips.

GEOGRAPHIC RANGE

Pelicans live on every continent except Antarctica. Brown pelicans live mostly along the coasts of North and South America. The other pelicans usually breed inland, and can be found on all continents except South America.

HABITAT

At breeding time, pelicans prefer nesting areas that are undisturbed, with water nearby where there are plenty of fish. Brown pelicans are the only true seabirds in the group, and they live along seacoasts. In general, the other pelicans breed near freshwater lakes and rivers, although they may spend some time in saltwater areas when they are not nesting.

DIET

Pelicans eat mainly fish, although they may occasionally take lizards, snakes, birds, small mammals, salamanders, and

crayfish. Brown pelicans often catch fish by plunging into the water from the air, while other pelicans usually scoop up fish while swimming.

BEHAVIOR AND REPRODUCTION

Pelicans float high on the water and raise their wings slightly as they float along. When they fly, their head is pulled back over their shoulders to form an S-curve. Groups of pelicans usually fly to their feeding places in a line.

Most pelicans breed in large colonies. Some build tree nests, and others nest on the ground. Female pelicans usually lay two or three eggs, and the adults take turns sitting on them. When they hatch, the chicks are naked and helpless, and often only one survives. The parents regurgitate (spit up) food into their big pouches for the chicks to eat until the young birds are on their own, usually at the age of three months.

PELICANS AND PEOPLE

Pelicans were tamed in ancient Egypt, and they were used as fishing helpers in India. Because they look so strange, there have been many myths, legends, and stories told about pelicans. They were also used as religious symbols for a mother's love.

CONSERVATION STATUS

The spot-billed pelican is listed as Vulnerable, facing a high risk of extinction, and the Dalmatian pelican is close to being threatened. The brown pelican was once listed as Endangered in all of North and South America, but it was removed from the list for Florida and Alabama because it is doing better in those areas.



NO MORE SCRAMBLED EGGS

Fifty years ago, pelicans were plentiful along the U.S. coasts. But by the early 1970s, the birds were completely wiped out in many places. Insect poisons used on farms and in forests had gotten into their food. One of the poisons killed the adult pelicans, and another one made their eggshells thin and weak. Instead of raising babies, the birds found their nests full of scrambled eggs. Without chicks being hatched, many pelican colonies disappeared. When people realized what was happening, they banned the use of the poisons. Now the pelicans are making such a good comeback that they are no longer listed as Endangered in Florida and Alabama, and they're doing much better in other states, too.



SPECIES ACCOUNTS

BROWN PELICAN *Pelecanus occidentalis*

Physical characteristics: Brown pelicans are the smallest pelicans, the only dark-colored ones, and the only pelicans that are seabirds. They have gray-brown backs and black bellies, and most of the year they have a white or yellowish head and neck. But at breeding time,



they get bright yellow heads, a yellow patch on the front of their necks, and dark feathers on the back of their necks. The pouches of the brown pelicans in western states turn from gray to red. The webbing between their toes makes these birds strong swimmers but awkward walkers. They are about 51 inches (129 centimeters) long from their bill tips to their tails, and they weigh about 8.2 pounds (3.7 kilograms).

Geographic range: Brown pelicans live on the seacoasts of North, Central, and South America. They can also be found along the coasts of Cuba and other West Indies islands.

Habitat: Brown pelicans stay close to the ocean year round and nest on islands. They live along the coast and also in estuaries (wet areas near the ocean where saltwater and freshwater mix).

Diet: Brown pelicans are famous for their spectacular headfirst dives from as high as 65 feet (20 meters) in the air. They scoop up fish in their huge pouches. After making a catch, they drain the water out of their pouches before swallowing the fish. They occasionally catch fish while sitting on the water.

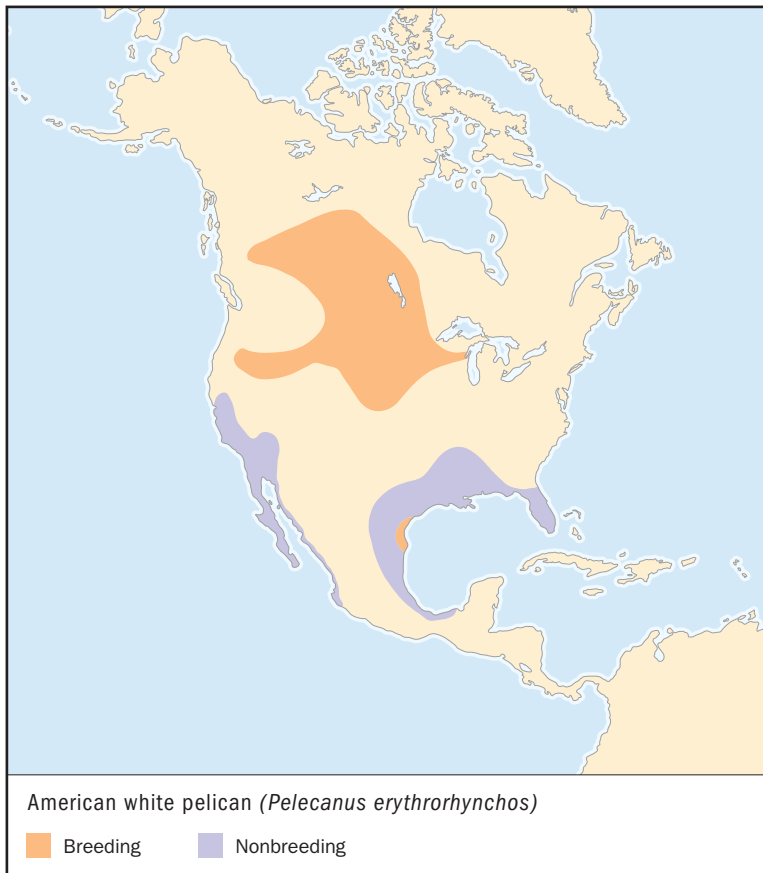
Behavior and reproduction: Brown pelican usually form flocks year round, and they nest in large colonies. They nest on small islands or

Brown pelicans have colorful pouches during the breeding season. (© Gregory G. Dimijian/Photo Researchers, Inc. Reproduced by permission.)

the sides of cliffs, either in trees or on the ground. The females usually lay three eggs, and the parents take turns keeping them warm for about a month. When the naked chicks hatch, they soon start screaming to be fed. The parents feed them regurgitated food from their pouches. Young brown pelicans can fly and feed themselves by the time they are eleven weeks old.

Brown pelicans and people: People love to watch brown pelicans in action, and they are often the main characters in children's stories and poems. Despite the popularity of the birds, people in the United States almost killed them off in many states with poisons intended for insects. The birds are sometimes injured by swallowing fishhooks and getting tangled in fishing lines. In South America, people gather their droppings to use as fertilizer on farms.

Conservation status: Although all brown pelicans were once listed as Endangered, the birds that live in Florida and Alabama have made a such a good comeback that they are no longer on the list. ■



AMERICAN WHITE PELICAN

Pelecanus erythrorhynchos

Physical characteristics: The American white pelican, with its big wings and immense bill, is one of the largest waterbirds in the world. These pelicans are mostly white with yellow-gray crests and black wingtips. During breeding season, both male and female develop a knob on their orange bills. The birds are about 62 inches (157 centimeters) long and weigh an average of about 16.4 pounds (7.4 kilograms).

Geographic range: American white pelicans live mostly in the western and southern parts of North America from Canada to Mexico.

Habitat: In spring, American white pelicans breed mainly on islands in freshwater lakes. They often feed in marshes, rivers, and shallow lakes that are as far as 30 miles (48 kilometers) from the nesting colony. Most of them migrate to warm seashores in fall.

Diet: Flocks of American white pelicans often fish together. They usually sit on the water and dip their bills in to catch fish. They occasionally also eat crayfish and salamanders.

Behavior and reproduction: Despite being large, heavy birds, flocks of American white pelicans often soar very high. Their courtship usually starts with dozens of birds flying over a nesting area. The females generally lay two eggs in nests on the ground, and the parents take turns sitting on the eggs for about a month. The chicks walk away from their nests long before they can fly. They gather in noisy bunches, while their parents fly back and forth with food. The parents regurgitate food and the young pelicans eat from their pouches. At about three months, the young birds are on their own.

American white pelicans and people: American white pelicans do not like to have people near their nesting colonies, and they may desert their nests if people come near. Motorboats and low-flying airplanes also disturb them. Although the pelicans usually eat the kinds of fish that people don't want, sometimes people shoot them because they think the birds are stealing valuable fish.

Conservation status: American white pelicans are not listed as threatened. Their numbers were going down for most of the last century. But people have been doing a better job of protecting them in recent years, and the birds have started several new breeding colonies. ■

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WADING BIRDS AND NEW WORLD VULTURES

Ciconiiformes

Class: Aves

Order: Ciconiiformes

Number of families: 6 families

order

CHAPTER

PHYSICAL CHARACTERISTICS

Most of the birds in the order Ciconiiformes (including the heron, hammerhead, stork, New World vulture, shoebill, and ibis families) are wading birds. Recently, the New World vultures (including condors) were switched into this order from a birds of prey family. (The New World vultures live in North and South America. Old World vultures live in the rest of the world and are still considered birds of prey.) The New World vultures were moved into this group with the wading birds because they are more closely related to storks than they are to hawks and eagles, but many people still think of all vultures as birds of prey.

All of the ciconiiforms (birds in the order Ciconiiformes) have big bills and long necks, bulky bodies with short tails, long legs and toes, and large, broad wings. They are all medium to very large birds, and males and females look alike. Very few of these birds have colorful feathers—most are combinations of gray, brown, black, or white. But many of the wading birds and vultures have bare parts on their heads, necks, and legs that are very colorful.

Birds in the heron family (including egrets and bitterns) have some other special features in common. They have a comb-like claw on each of their middle toes. At breeding time, both males and females grow long, showy feathers on their heads, necks, and backs. They also have powder downs, which are feathers that are not shed. Instead, these feathers turn to powder that the birds use to keep their other feathers in good shape.

phylum

class

subclass

● **order**

monotypic order

suborder

family

GEOGRAPHIC RANGE

Members of the order Ciconiiformes are found almost everywhere in the world, except for areas far to the north and south. Most of them prefer warm areas, and those that nest in the coldest places migrate in fall and spring.

HABITAT

Most of the wading birds in this group live in wetlands, from tidal areas (where saltwater and freshwater mix), to swamps, marshes, damp meadows, and forest streams. Some live in grasslands near the wetlands. Just a small percent of the wading birds are able to live in drier areas.

The other birds in this group, the New World vultures, can live wherever they are able to soar on warm air currents and search for carrion (dead and decaying animals). They do not have to depend on wetlands for their food, so they can live practically anywhere, including deserts, mountains, tropical forests, and cities.

DIET

The Ciconiiformes are carnivorous birds. Wading birds catch many different kinds of animals in or near water, including shrimp and other crustaceans, fish, frogs, insects, and snails. Some also feed on small mammals, birds, and reptiles. Very few of them also eat carrion and fruit. The New World vultures feed almost entirely on carrion.

Ibises, spoonbills, and some of the storks have very sensitive bills. They hunt for prey by touch, either by probing in the water and mud with their bills slightly open or by swinging their bills from side to side in the water. The other birds in the order Ciconiiformes search for prey by sight. Most herons and storks stand still or wade slowly through shallow water to stalk their prey. Some of the vultures do not have to see carrion in order to find it—in addition to having good eyesight, they also have a strong sense of smell.

Goliath herons and some other wading birds feed by themselves. These birds protect a feeding territory as large as 3.7 square miles (9.6 square kilometers). Many other wading birds feed in huge flocks. As feeding areas dry out or get flooded, the flocks move around to find the best places to eat.



ON THE MOVE

Since most birds can fly, it is easy for them to move to new places. They usually move in order to find more food, water, or space. When food becomes too hard to find in winter, for example, many wading birds migrate long distances to warmer places. Then, in spring, the birds fly back to the places they left and get ready to raise a new family.

Wading birds often move shorter distances, too. This kind of movement is called dispersal. Most wading birds depend on shallow pools of water for their food, and

many of them live in areas that have rainy seasons and dry seasons. As the pools of water shrink and grow, the birds disperse to areas where the water is just the way they like it.

The wading birds' champion mover is the cattle egret. These egrets used to live just in Africa and Asia. Then some of them flew across the ocean to South America. The first cattle egrets appeared in Florida in 1940, and by now they have spread all across North and South America.

BEHAVIOR AND REPRODUCTION

Most of the Ciconiiformes birds gather in big groups called colonies when they roost at night and when they breed. If they migrate, they usually fly in huge flocks—when birds gather in colonies, they are usually safer from predators that might harm them. Colonies may include many different kinds of herons, storks, and ibises, for example, or they may be made up of all the same species. A few kinds of wading bird pairs stay by themselves when they breed.

For the most part, these birds are not noisy. The vultures do not have a voice box, so the only sounds they can make are soft wheezes and whistles. Storks, shoebills, ibises, and spoonbills also have very little to say most of the year, but some of them squeal, croak, and clap their bills when greeting a mate. The herons are noisier year round, and the loudest birds in the group are the bitterns. They make booming calls to attract mates or proclaim their territories.

Depending on where wading birds live, they nest at different times of the year. The best time to nest is when the most food is available so there is plenty to feed the young. Spring



BILLS THAT “FILL THE BILL”

At first glance, the bills of the birds in this group might look very similar. But although the birds all have large bills, they come in many interesting shapes. The storks' bills are thick and exceptionally long. Most herons have thinner, dagger-shaped bills. New World vultures have beaks with hooked tips and sharp edges that are used for tearing meat. A hammerhead's bill is shaped like some of the storks' bills, but it has a hook on the end, which storks don't have. The bills of ibises turn downward, and shoebills have wide, hooked bills. Spoonbills have the most unusual bills of all. They are long and flat, with a “spoon” on the tip. Whether the bills are used to probe, swish, stab, or tear, they are just what the birds need in order to feed.

and summer is nesting time in the cool weather of the temperate areas. In the warmer subtropical areas, the birds tend to nest during the dry season to avoid the threat of flooding. The birds that live in the tropics near the equator usually nest in the wet season when food is most plentiful.

When wading birds are ready to nest, the males arrive at the nest site first. They defend their territories by stretching and flapping their wings. When the females arrive, the birds often greet each other with a courtship display. This may include bill snapping and tapping, and smoothing each other's feathers. The females usually build the nests with sticks brought by the males. After the eggs are laid, the parents take turns sitting on the eggs and feeding the young. The chicks are blind and almost naked when they hatch. The parents feed them by regurgitating (spitting up) food on the nest floor or by letting the chicks eat it from their open bills.

The New World vultures do not build nests. They lay their eggs on the ground in caves, under bushes, in large tree holes, or even in abandoned buildings. Vulture chicks depend on their parents for a long time.

Young condors do not learn to fly until they are six months old.

WADING BIRDS, NEW WORLD VULTURES, AND PEOPLE

Myths and superstitions have kept many wading birds and New World vultures safe from harm. Native peoples have honored vultures and sacred ibises as gods. White storks were thought to bring babies and considered lucky by Europeans. Some of the wading birds that migrate arrived just as the rains came, and people treated them kindly as “rain-bringers.” Hammerheads and bitterns were thought to bring bad luck and even death, so people often stayed away from them.

Other birds are not so lucky. Herons were killed in North America and Europe because some people thought the birds ate too many fish and were harmful to the fishing industry. Vultures were shot because some farmers thought they killed

calves. And millions of egrets, ibises, and spoonbills were killed so their feathers could be put on fancy hats. Laws now stop people from killing birds for their feathers, but many of the birds in this group are still in trouble.

CONSERVATION STATUS

More than one-fifth of the wading birds and New World vultures are listed as Threatened or Endangered. Many of their problems come from loss of habitat. As the Earth's population grows, people take more and more of the wetlands where the wading birds once lived. They turn the wetlands into farms and cities. Wading birds also suffer greatly from polluted water, and in some parts of the world, they are still shot for food.

Many people, however, are doing what they can to help the birds. The last of the California condors were taken from the wild and bred in captivity—now they are gradually being released into the wild again. Although many birds are still in serious trouble, pollution and hunting laws now protect some of the threatened wading birds. Governments and conservation groups are also working to set aside protected areas for wading birds and New World vultures in many parts of the world.

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family CHAPTER

HERONS AND BITTERNS

Ardeidae

Class: Aves

Order: Ciconiiformes

Family: Ardeidae

Number of species: 62 species

PHYSICAL CHARACTERISTICS

Hérons, egrets, and bitterns are medium to very large wading birds, birds with long legs who walk through shallow water searching for prey. They are 9.7 to 58.5 inches (25 to 150 centimeters) long from beak to tail, and they weigh between 0.16 and 9.9 pounds (73 grams and 4.5 kilograms). They have long necks, which they fold over their backs when flying, and long legs and toes. With the exception of the boat-billed heron, which has a wide, flat bill, these birds all have long, sharply-pointed bills, large eyes, and broad wings.

The birds in the heron, egret, and bittern family have feathers that are combinations of the colors black, gray, brown, and white. They have a comblike claw on each of their middle toes that they use for smoothing their feathers. Another way they keep their feathers in good shape is by putting powder on them. It comes from feathers called powder downs. These are special feathers that turn to powder instead of dropping off. At breeding time, both males and females grow long, showy feathers on their heads, necks, and backs.

GEOGRAPHIC RANGE

Hérons, egrets, and bitterns live on all continents except Antarctica. They also live on islands in all oceans. Many of these birds prefer warm climates, and they live in the tropics year round. The birds that nest in the cooler areas of the world usually migrate in spring and fall.

phylum

class

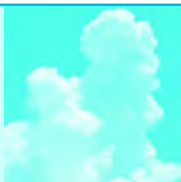
subclass

order

monotypic order

suborder

▲ **family**



UMBRELLAS FOR HUNTING

Black herons and many other herons and egrets sometimes stand looking into the water with wings spread in the shape of an umbrella. This casts a shadow over the water. Scientists thought the birds did this because they could see their prey better in the shade than in the glare of sunlight on the water. However birds also do this on cloudy days. Scientists believe the shadow fools fish into thinking they have found a safe place. When fish swim into the shadow of a big bird's "umbrella," the heron quickly snatches a meal.

HABITAT

Herons, egrets, and bitterns usually live in wetlands, including swamps, tidal areas (where saltwater and fresh water mix), marshes, damp meadows, and forest streams. Most of them feed in water, but they like to have trees nearby for roosting at night and for their nests. Some also live in grasslands, farm fields, or rice fields, and a few kinds are able to live in drier areas.

DIET

Herons, egrets, and bitterns are carnivorous, eating only meat, and most of them eat fish. They wade in shallow water looking for prey, animals they eat, and with a rapid thrust of their long, sharp bills they capture fish. They also eat crabs and other crustaceans, frogs, insects, snails, small mammals, small birds, and reptiles.

BEHAVIOR AND REPRODUCTION

Many kinds of herons and egrets gather in huge flocks to feed together and roost at night. They also nest in groups called colonies that can number from a few birds to thousands. Bitterns are more likely to keep to themselves. The females usually build nests with sticks brought by their mates. Except for bitterns, both parents take turns sitting on the eggs. Newly hatched young are helpless, but they grow quickly on the food their parents bring.

HERONS, EGRETS, BITTERNS, AND PEOPLE

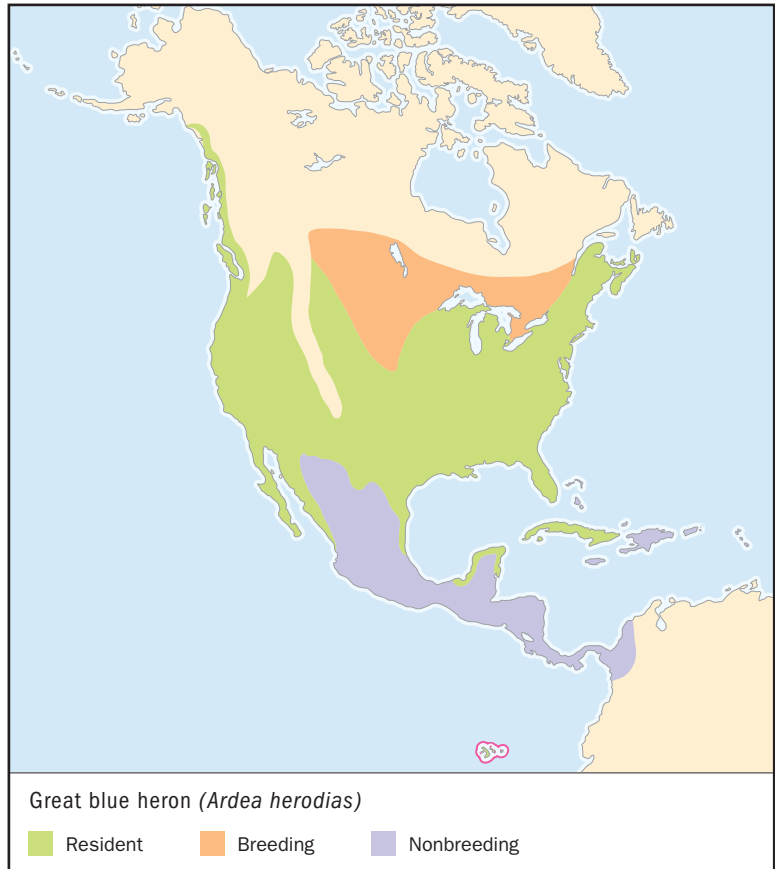
Large colonies of herons and egrets attract the attention of people. Herons, egrets and bitterns were kept them as pets, and killed for food or their feathers for hat decoration. Herons often take advantage of habitats made by people, such as farm ponds, rice fields, reservoirs, city parks, and roadside ditches.

CONSERVATION STATUS

Some herons, egrets, and bitterns are not threatened, but others are close to extinction, dying out. Many of the birds are in

trouble because of wetland pollution and destruction. In some parts of the world they are still hunted for their body parts, or they are killed when they feed at fish farms. Conservation groups are working to save protected areas for these birds and help them make a comeback.

SPECIES ACCOUNTS



GREAT BLUE HERON *Ardea herodias*

Physical characteristics: The great blue heron is about 4 feet (1.2 meters) tall. It is the largest heron in North America. It is between 36 and 54 inches (91 and 137 centimeters) long from bill to tail and it weighs from 5 to 8 pounds (2.3 to 3.6 kilograms). Great blue herons come in two colors. The dark heron has mostly gray feathers, and the other one is completely white.

Geographic range: Great blue herons breed in most of the United States, except for mountains and deserts. They also breed in southern Canada and parts of Mexico. During the cold months, some of the birds migrate as far as northern South America.



Great blue heron breeding pairs perform courtship displays before mating. They usually build their nests in tall trees near water. (© C.K. Lorenz/Photo Researchers, Inc. Reproduced by permission.)

Habitat: Great blue herons live in many different kinds of habitats, from deep-water lakes to dry land. They can be found in both fresh-water and saltwater marshes, mangrove swamps, seashores, meadows, flooded farm fields, and dry pastures.

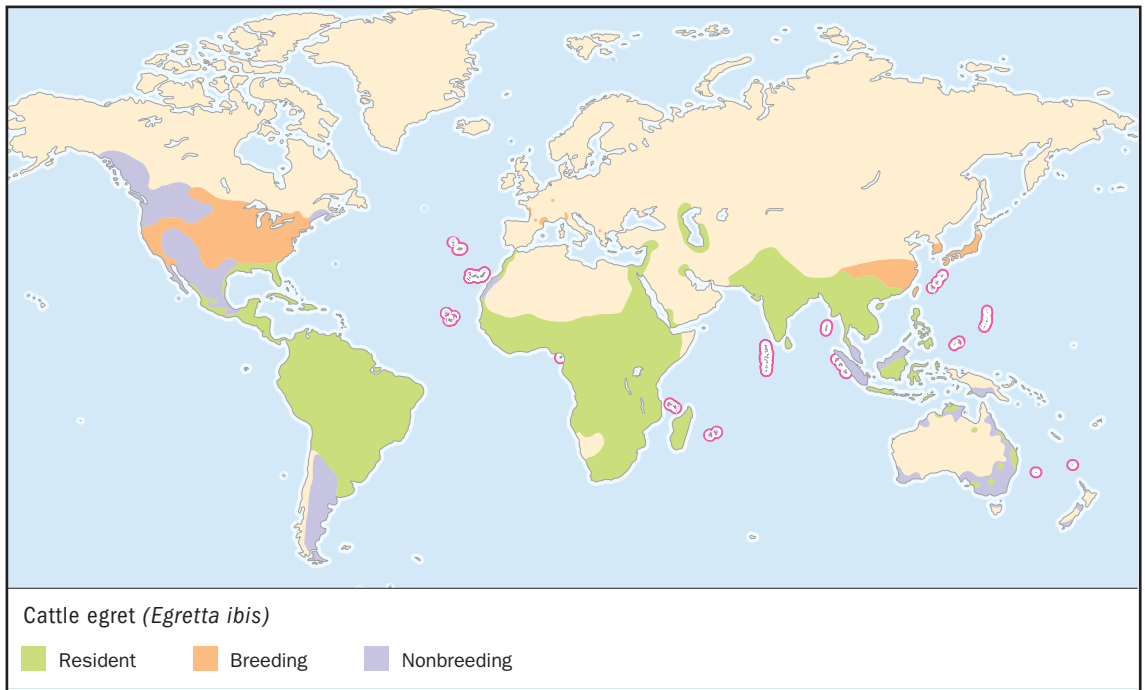
Diet: Fish, both large and small, are the main food eaten by great blue herons. They also eat other animals, including frogs, small mammals, shrimp and other crustaceans, reptiles, small birds, and insects. They feed mostly by standing still in the water or slowly stalking their prey. However they sometimes dive in and swim after fish and other water animals.

Behavior and reproduction: Great blue herons are noisy birds: they squawk and snap their bills loudly. They nest alone or in small colonies and usually build their stick nests in tall trees near water. Their nests are as large as 39 inches (1 meter) across. Females lay two to seven eggs, but often only one or two chicks survive long enough to fly from the nest.

Great blue herons and people: The great blue heron is the best known heron in North America. Most people are fond of them, except for the owners of fish farms. Great blue herons are the topic of

some Native American legends. In one legend, the heron teaches people to stand on their own and have self confidence.

Conservation status: Great blue herons are not threatened. However the population of the all-white great blue herons is getting smaller because of habitat destruction. ■



CATTLE EGRET

Egretta ibis

Physical characteristics: Cattle egrets are white, chicken-sized birds with shorter legs and beaks than most herons and egrets have. They are 18 to 22 inches (46 to 56 centimeters) long from beak to tail and weigh between 12 and 14 ounces (340 and 390 grams). During breeding season, they grow light orange feathers on their heads, backs, and breasts.

Geographic range: Originally they lived only in Africa, Asia, and Australia, but they crossed the Atlantic Ocean to South America and started to spread. In the middle of the twentieth century, they reached North America. Cattle egrets are in all but the coldest areas of North and South America, in addition to Africa, Asia, and Australia.

Habitat: Cattle egrets are more likely to be found in grasslands and farm fields than most herons and egrets. They also live at dumps, on golf courses and athletic fields, rice fields, and lawns. Sometimes they nest with other kinds of wading birds, usually on islands.



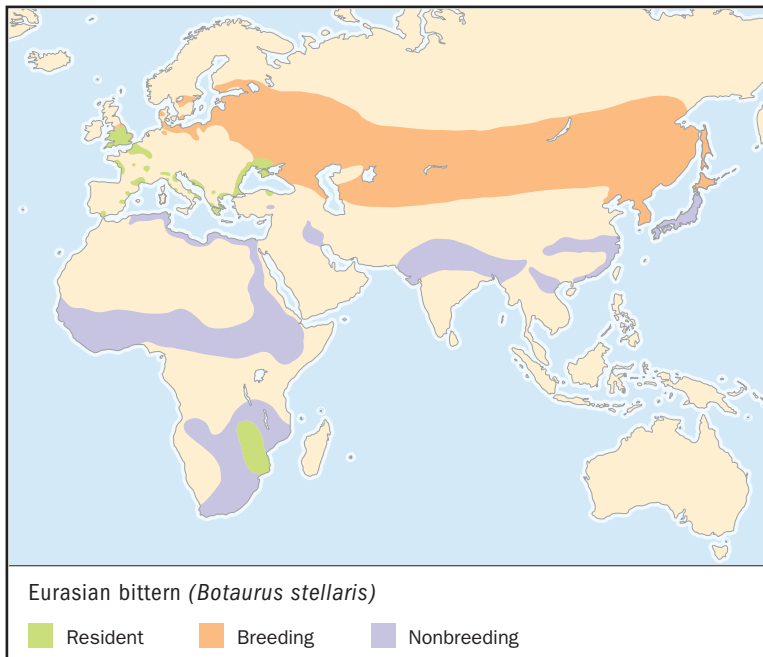
Cattle egrets originally lived only in Africa, Asia, and Australia, but they crossed the Atlantic Ocean to South America and started to spread. They now live in North America, too. (Robert J. Huffman/Field Mark Publications. Reproduced by permission.)

Diet: Cattle egrets eat mainly insects, especially locusts, grasshoppers, and crickets. They also catch flies, beetles, caterpillars, dragonflies, mayflies, cicadas, spiders, and frogs.

Behavior and reproduction: Cattle egrets often walk near cattle and other hoofed animals, and sometimes they even sit on them. The cattle stir up insects as they walk along, making it easy for the egrets to catch them. Cattle egrets nest in big colonies of a few hundred birds to several thousand pairs. Their stick nests are about 16 inches (40 centimeters) wide. The female usually lays four or five eggs. The chicks leave the nest two weeks after hatching, but they climb around the branches for another two weeks before they fly off.

Cattle egrets and people: Farmers are usually happy to have these insect-eating birds around. But when the birds form huge colonies near towns, some people consider them a nuisance. While trying to control the number of cattle egrets, people sometimes harm less plentiful herons and egrets that are with the cattle egrets.

Conservation status: Cattle egrets are not threatened. The cattle egret is one of the most common egrets or herons in the world. ■



EURASIAN BITTERN

Botaurus stellaris

Physical characteristics: The Eurasian bittern is a thick-necked, medium-sized, golden brown wading bird. It has black feathers on its head and a black “moustache.” These bitterns are between 25 and 31 inches (64 and 80 centimeters) long from beak to tail, and they weigh from 1.9 to 4.3 pounds (0.9 to 1.9 kilograms). The feathers on their backs are speckled, which helps them hide among the plants.

Geographic range: Eurasian bitterns live in Europe, Asia, and Africa.

Habitat: They breed among dense, close together, plants in shallow water. During the rest of the year, they spread out to other wet areas, including ponds, ditches, and rice fields.

Diet: Eurasian bitterns eat fish, frogs, insects, small mammals, small birds, and snakes. They hunt by walking slowly among the plants, lifting their feet high with every step.



Eurasian bittern hunt by walking slowly among the plants in shallow waters, lifting their feet high with every step. (Illustration by Gillian Harris. Reproduced by permission.)

Behavior and reproduction: When a Eurasian bittern spots a predator, it can “freeze” for hours, with its beak pointing upward and eyes pointing forward. It sways like a blade of grass, making it camouflaged (KAM-uh-flajd) among the plants. It defends its breeding and nesting area by making loud, booming noises and fighting on the ground and in the air. A male bittern may have as many as five mates within his territory. Each female usually lays four or five eggs and the young leave the nest two weeks after hatching. They can fly by the time they are fifty-five days old.

Eurasian bitterns and people: As a result of the bittern’s booming call, when it appears in folk tales and legends, it is usually wicked or it brings bad luck.

Conservation status: The Eurasian bittern used to be widespread and abundant, but now it is listed as Vulnerable, facing a high risk of extinction in the wild in the medium-term future, in many areas. ■

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HAMMERHEAD

Scopidae

Class: Aves

Order: Ciconiiformes

Family: Scopidae

One species: Hammerhead
(*Scopus umbretta*)

family

CHAPTER

phylum

class

subclass

order

monotypic order

suborder

▲ family

PHYSICAL CHARACTERISTICS

A hammerhead (also called a hamerkop) is a wading bird with strong, medium-long legs and large eyes. “Hammerhead” might seem like a good name for a woodpecker, but this bird’s name comes from the shape of its head and not from its actions. On one end of its head is a big backward-pointing crest, and on the other end is a heavy bill. Between the crest and the bill, the bird’s neck joins its head like the handle of a hammer.

Chocolate-brown feathers cover the hammerhead’s body, with paler feathers on its chin and throat. The female is similar to the male, but slightly larger. The birds are between 20 and 24 inches (50 and 60 centimeters) long from beak to tail, and they have short tail feathers. Their wingspan is 11.6 to 12.4 inches (29.5 to 31.6 centimeters), and they weigh between 14.6 to 15.2 ounces (415 to 430 grams), a little less than a pound. The largest hammerheads are 22 inches (56 centimeters) tall.

GEOGRAPHIC RANGE

Hammerheads live south of the Sahara Desert in the southern two-thirds of Africa. They are also found on the island of Madagascar and in the southwestern part of the Arabian Peninsula. Some of the birds spread out when dry areas become flooded during the rainy season, but they do not migrate in spring and fall. They are common and familiar birds in the places where they live.

HABITAT

Hammerheads are found in almost all types of wetlands. They feed in the shallow waters of lakeshores, riverbanks, ponds, marshes, wetlands near the ocean, and reservoirs behind dams. They usually use large trees near the wetlands for roosting at night and for nesting, but sometimes they use cliffs or rocky hillsides.

DIET

Hammerheads are carnivorous, meat eaters, and they eat many different kinds of animals found in or near water. The prey that they eat varies according to where they live. In south and east Africa, the birds usually catch clawed frogs. In other areas, they are more likely to hunt for small fish. Wherever they live, they also eat shrimp and other crustaceans, small mammals, large insects, worms, and water snails. The hammerheads that live near people sometimes dig around in garbage piles for tasty leftovers.

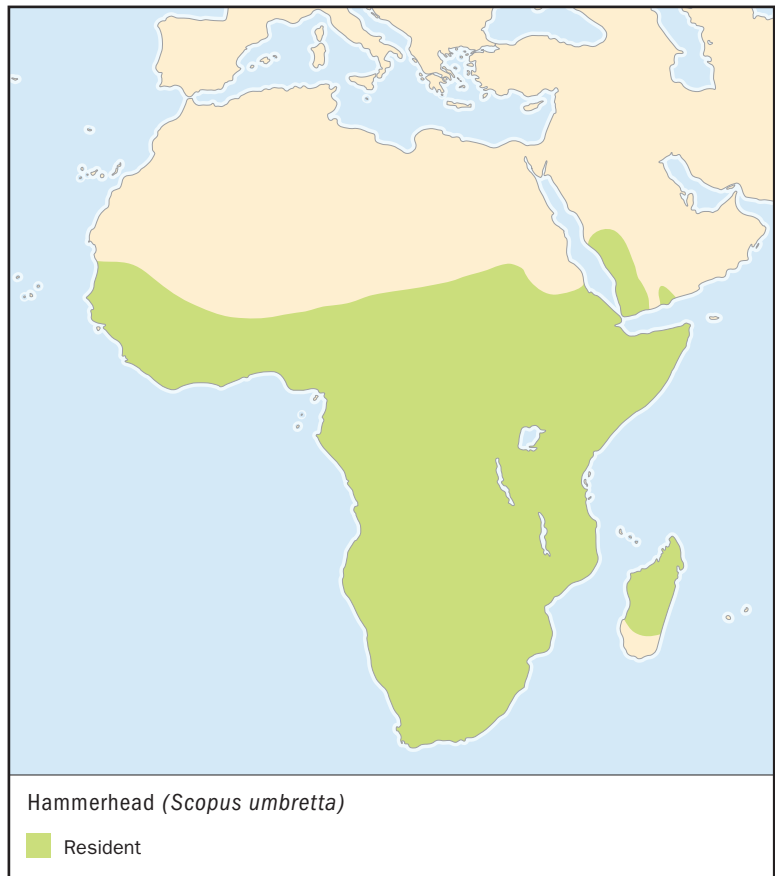
While wading into shallow water, hammerheads pick their prey from among the plants. They may stir up small animals in the water with their feet, or flick their wings to encourage the prey to move. Sometimes the birds hunt from the air. They capture tadpoles or small fish while flying slowly over the water.

BEHAVIOR AND REPRODUCTION

Hammerheads are usually busy feeding, nest building, or caring for their young during daylight hours, although they are less active during the heat of mid-day. Sometimes they are still out and about at twilight, but they settle down to rest and sleep at night. They often hunt for food alone or in small groups, but occasionally large groups (up to fifty birds) may roost near each other in the trees.

At nesting time, hammerheads defend territories, although the territories overlap. The birds breed during the dry season when the wet areas are shrinking. At that time, the frogs, fish, and other prey, animals they hunt for food, are concentrated in smaller areas, and they are easier to catch than during the rainy season. When the prey animals are close together, the parents are able to find plenty of food for their young.

Hammerhead pairs are famous for the huge nests they build. A nest may weigh as much as 55 pounds (25 kilograms) and be strong enough for a person to stand on it. The fork of a tree



is the usual place for a nest. Hammerheads prefer to put their nests about 30 feet (9 meters) off the ground. Occasionally they build their nests on cliffs or even on the ground.

The male and female work together on the nest, usually in the morning and evening. The nest may contain more than 8,000 twigs, branches, and leaves that are stuck together with mud. The birds start with a platform for the floor and then begin work on the thick walls. Many of the nests contain several rooms. The birds leave a small opening in the side with a long tunnel leading into the nest. The tunnel is just big enough for them to go through. When the walls are about 5 feet (1.5 meters) high, the birds add a roof over the top.

Often hammerheads use the same nest year after year, but some pairs build as many as five nests in a season. They may abandon some before they finish building them. While one nest is used for raising young, another may become a place to



It may take a hammerhead pair six months to build their nest, and they may build as many as five in a season, using some and abandoning the rest. (© Nigel J. Dennis/Photo Researchers, Inc. Reproduced by permission.)

roost at night. Still other nests may be taken over by other animals. Eagle owls, barn owls, Egyptian geese, lizards, and snakes (including deadly cobras) have all been seen using hammerhead nests. Small birds may attach their nests to the outside of hammerhead nests, and sometimes they even move right in and share a big nest while the hammerheads are still living there.

After a hammerhead pair has finished building their nest, the female lays between three and seven white eggs. Both parents sit on the eggs and care for the young. The eggs hatch after about thirty days, and at first the chicks have downy, pale brown feathers. They begin to fly from the nest about fifty days after hatching.

HAMMERHEADS AND PEOPLE

There are many superstitions, myths, and legends about hammerheads. Some Africans tell stories about how the birds have magical powers to bring bad luck to people. Some say that hammerheads can tell who will be the next person to die just by looking at the person's reflection in the water. When the

bird spots the unlucky person, it supposedly calls out three warning cries over the person's home, and then the person dies. Another belief is that something bad will happen to people if hammerheads fly over them. It is also said that a hammerhead can cause a house to melt or be struck by lightning, and that it can cause cattle to become sick. One story says that if a pregnant woman imitates the sound of a hammerhead, her baby will cry continuously with the same sound.

When hammerheads are feeding, sometimes they stop eating and skip around each other, opening and closing their wings and uttering a weird cry. These antics remind people of wicked witches chanting spells. Because of all these legends, people have given hammerheads great respect and have tried to stay away from them.

CONSERVATION STATUS

Hammerheads are not in any danger of extinction (dying out).

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STORKS

Ciconiidae

Class: Aves

Order: Ciconiiformes

Family: Ciconiidae

Number of species: 19 species

family

CHAPTER

phylum

class

subclass

order

monotypic order

suborder

▲ family

PHYSICAL CHARACTERISTICS

Storks are medium to large wading birds, birds who walk through shallow water in search of food. They have long legs, long necks, powerful bills and broad, strong wings. Male and female storks look alike. Scientists think they are more closely related to the vultures of North and South America than to other long-legged wading birds such as herons.

Most of the nineteen kinds of storks have feathers that are different combinations of white, black, and gray, and many have brightly colored bills. Storks are 30 to 60 inches (75 to 152 centimeters) long from beak to tail, and they weigh between 2.9 and 19.7 pounds (1.3 and 8.9 kilograms).

GEOGRAPHIC RANGE

Storks are found on all continents except Antarctica. Most live in the warm areas of Europe, Asia, and Africa. The wood stork is the only kind that lives that lives in North America.

HABITAT

Storks are found in a wide variety of habitats. Many live in or near wetlands with shallow water. Some, such as the marabou (MARE-uh-boo), prefer drier grasslands within flying distance of rivers or lakes. Black storks nest in the forests of Europe and Asia near pools and rivers. Some storks do not mind living near people and some nest on buildings in European towns and cities.

DIET

Storks are carnivorous, meat-eaters. They eat many different kinds of animals found in or near water, including fish, frogs, insects, and snails. Some storks hunt for food by feeling underwater with their sensitive bills. Others watch for their prey and grab it. Marabou storks sometimes feed on carrion, dead and decaying flesh, just as vultures do. Since a marabou's head and neck are bare, it can poke deep inside a dead animal's body without messing its feathers.

BEHAVIOR AND REPRODUCTION

Storks can soar high in the sky on rising warm air currents, and most of them fly with their necks and legs stretched out. Much of the year, storks keep to themselves or form small flocks. But at breeding time, some storks nest in big groups called colonies, while others nest alone or in small groups.

Storks have various courtship displays, including dancing movements and loud bill clattering. Both parents help build platform nests of sticks and twigs, usually in trees. They raise an average of five chicks, and the young storks are ready to have families of their own when they are between three and five years old.

STORKS AND PEOPLE

Most people who live near storks are fond of the birds and want to protect them. Having storks around is a sign of good luck for some communities. Tourists enjoy going places where they can see the big birds. Storks are also the topic of many stories, myths, and folk tales. Some people hunt them for food because they are big and have a lot of meat.

CONSERVATION STATUS

The Oriental white stork, Storm's stork, and the greater adjutant are listed as Endangered, facing a very high risk of extinction in the wild. The lesser adjutant and the milky stork are considered Vulnerable, facing a high risk of extinction in the wild. Also many populations of storks are declining because the places they need to live are being taken over by human building projects. Wood storks are not listed as endangered in most places, but they are on the U.S. Endangered Species List.

SPECIES ACCOUNTS



WOOD STORK *Mycteria americana*

Physical characteristics: Wood storks have crusty gray skin on their bare heads and necks. Their body feathers are white, and they have black flight feathers. They are between 33 and 40 inches (83 and 102 centimeters) long from beak to tail. Their wings stretch 59 inches (150 centimeters) from tip to tip, and they weigh between 4.4 and 6.6 pounds (2 and 3 kilograms).



Wood storks hunt by touch, catching fast-moving fish without seeing them. Scientists have found that when a fish touches the bill of a wood stork, it can react in 0.025 seconds to snatch it, the fastest reaction time of any known vertebrate, animal with a backbone. (Lynn M. Stone/Bruce Coleman Inc. Reproduced by permission.)

Geographic range: Wood storks are found in southeastern United States and southward through the tropical areas of Mexico, Central America, and South America. They are the only storks that live in North America.

Habitat: Wood storks live in wetlands with shallow water. They often breed among the bald cypress trees, conifer trees with needles that grow in wetlands.

Diet: A wood stork eats mostly fish, and it catches them without having to see them. It sweeps its open bill through shallow water. The instant it feels a fish, frog, crayfish, or other small prey, it snaps its bill shut to capture the prey.

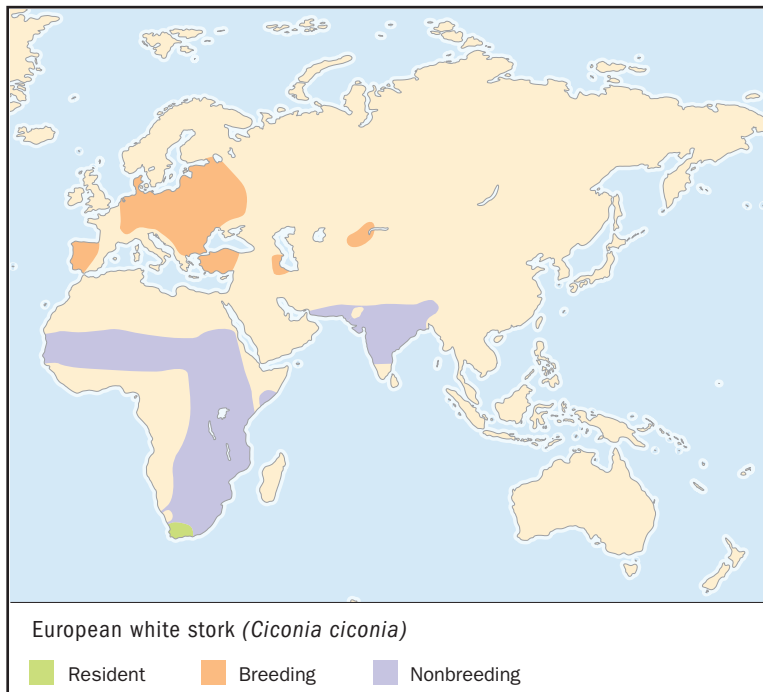
Behavior and reproduction: Many wood storks raise their young during the dry season. As the pools of water shrink, the creatures living in them have to swim closer together. That makes it easier for the storks to find food.

When the time is right, the male stork chooses a nest site, usually high up in a bald cypress tree. Then the male collects sticks while the female waits at the nest site. After the nest is built, the female usually lays three eggs. Both males and females incubate, sit on and warm, the eggs. Eggs usually hatch after twenty-eight to thirty-two days. The hungry chicks eat more than half their weight in food

every day. They grow quickly and are ready to leave the nest in about two months.

Wood storks and people: When wood storks nest, it is a sign that wetlands are healthy. In folklore, storks are responsible for the delivery of babies.

Conservation status: Wood storks are not considered endangered in most places, but they are on the endangered species list in the United States because of habitat loss. ■



EUROPEAN WHITE STORK

Ciconia ciconia

Physical characteristics: European white storks have white feathers on the head and body and their wings are black. Their long bills and tall legs are red orange. The birds are 39 to 40 inches (100 to 102 centimeters) long from beak to tail, and they weigh between 5.1 and 9.7 pounds (2.3 and 4.4 kilograms). Their wingspan is 61 to 65 inches (155 to 165 centimeters).

Geographic range: Most European white storks spend the winters in tropical Africa and India, and they nest in Europe and western Asia. Some also live year-round at the southern tip of Africa.

Habitat: European white storks prefer open lands without tall trees or thick vegetation, usually in or near wetlands. They sometimes nest in towns and cities.

Diet: Unlike wood storks, European white storks find their food by sight. They eat a variety of animals, from insects and earthworms, to lizards, snakes, and frogs.



Most European white storks spend the winters in tropical Africa and India, and they nest in Europe and western Asia. They prefer open areas, but also nest in cities and towns.
(© U. Walz/OKAPIA/Photo Researchers, Inc. Reproduced by permission.)

Behavior and reproduction: European white storks migrate for long distances between their wintering areas in Africa and India to their nesting places in Europe and Asia. They soar high on warm air currents and follow the same migration routes year after year.

In spring, male storks arrive at the nesting place first. Males often return to the same nests used in previous years and add more sticks and grass to them. An old nest may grow to be as big as a car. Some males build new nests. Female storks arrive about a week later. The birds have a noisy courtship display: they tilt their heads back and click their bills. This clattering noise can be heard from far away. The females lay an average of four eggs. Incubation is done by both parents and eggs hatch after thirty-three to thirty-four days. At eight to nine weeks the young birds fledge, grow the feathers needed for flight.

European white storks and people: People are fond of European white storks because they say that the birds bring good luck. The birds help control pests by eating bothersome insects and other unwanted animals.

Conservation status: European white storks are listed as threatened. In Africa, people poison insects and other animals that eat crops. So the storks have less food to eat, or they eat poisoned animals and die. In Europe, many of the storks' wetlands have been turned into

farms and cities. Some of the storks are hunted on their migration trips or are killed by collisions with power lines. Groups are working to protect the storks from extinction, dying out. ■

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family CHAPTER

NEW WORLD VULTURES

Cathartidae

Class: Aves

Order: Ciconiiformes

Family: Cathartidae

Number of species: 7 species

PHYSICAL CHARACTERISTICS

The vultures living in the New World, North and South America, generally have dark black, brown, and gray feathers. However condors and king vultures also have some white feathers. The color of the skin on the birds' bare heads and necks are combinations of gray, red, blue, and yellow. The birds weigh between 2.1 pounds and 33 pounds (0.94 and 15 kilograms). The length of the birds in this family ranges from 23 to 53 inches (58 to 134 centimeters) from their beaks to the end of their tails.

Until recently, New World vultures were grouped with hawks as birds of prey. But scientists have found that these vultures are more similar to storks than they are to hawks. For example, their feet are weak like storks, and they do not have the strong, grasping claws that hawks use to catch live animals.

GEOGRAPHIC RANGE

New World vultures range from southern Canada to the southern tip of South America. The turkey vulture and the black vulture are the two most common vultures in North and South America, and they are sometimes called buzzards.

HABITAT

These birds can live in almost any habitat, from seashores to deserts to forests, as long as they can find carrion, dead and decaying animals, to eat. All vultures hunt by soaring high and looking down for food. However turkey vultures and yellow-headed

phylum

class

subclass

order

monotypic order

suborder

▲ family



DECAYING DINNER

Most creatures would get sick or die if they ate the decaying meat that vultures eat. Of course, vultures prefer their meat to be as fresh as possible. But often they have to wait for the predators that killed the animal to go away. Or they have to let dead animals decay for a while before they can tear it apart. Vultures have chemicals in their stomachs that protect them from the germs in their food. So if meat gets rotten while they wait, it's still okay for vultures.

vultures have an especially good sense of smell and can sniff out small, dead animals in dense forests without having to see them first.

DIET

New World vultures are scavengers, eating carrion rather than killing their own food. They wait for other animals, or cars, to kill their food. They also eat animals that die from disease or old age. They usually find their food while soaring high in the air. If they see other vultures flying down or eating on the ground, they try to join them. The biggest birds, the condors and king vultures, can tear apart the hides of large mammals. But most of these vultures get at the meat through natural openings, such as the mouths and eyes. Or, if an animal has been killed by a wolf or other predator, they may watch and wait until the predator leaves and then take their turn.

BEHAVIOR AND REPRODUCTION

Before flying in the morning, New World vultures usually find a sunny spot where they can spread their wings. The sunshine warms their bodies and helps to straighten their flight feathers. They wait until the winds pick up before taking off. They roost together at night and they hunt for food in flocks, but at breeding time they spread out and nest by themselves.

New World vultures usually mate for life. As part of their courtship display, a pair flies high over the nesting area with wingtips almost touching. This may tell neighboring pairs to stay away. Female vultures lay their eggs directly on the ground in the floor of a cave or in a tree hole. The condors and king vultures lay only one egg and other vultures usually lay two. The parents take turn sitting on the eggs and feeding the chicks. Young condors learn to fly at about six months, and the smaller vultures learn by the time they are three months.

NEW WORLD VULTURES AND PEOPLE

New World vultures have been important in the myths and legends of people for thousands of years. In South America,

pictures of Andean condors have been found on ancient pottery, carvings, and cloth. In North America, vultures were thought of as symbols of death. Many people are fascinated by vultures and like to watch them in action.

CONSERVATION STATUS

California condors are listed as Critically Endangered, which means they are facing an extremely high risk of extinction in the wild. Andean condors are considered Near Threatened, meaning they are close to becoming endangered. Not all vultures are in trouble. In fact, turkey vultures have been spreading northward into Canada for the last thirty years.

SPECIES ACCOUNTS



KING VULTURE *Sarcoramphus papa*

Physical characteristics: The feathers on king vultures' bellies and backs are white, and the large flight feathers on their wings are black. It is the most colorful New World vulture with bright red, yellow, orange, blue, and purple patches on its wrinkled head, its smooth neck, and the wattle, a flap of skin, above its beak. The length of a king vulture is between 28 and 32 inches (71 and 81 centimeters), and it weighs between 6.6 and 8.3 pounds (3 and 3.8 kilograms).

Geographic range: King vultures live from southern Mexico to northern Argentina in South America.

Habitat: King vultures are most commonly found in rainforests, but they also live in grasslands and among grazing cattle.

Diet: King vultures find carrion by circling high in the sky. If they notice smaller vultures eating at a carcass, king vultures fly down and take over. King vultures can tear apart large animals better than the smaller vultures.

Behavior and reproduction: King vulture females lay a single egg in a hollow tree, sometimes high off the ground. Both parents care

for the chick. Young birds can fly at three months, but they depend on their parents for feeding for a few more months.

King vultures and people: King vultures are so colorful that artists like to use them as the subject of their work.

Conservation status: King vultures are not listed as endangered. ■



CALIFORNIA CONDOR

Gymnogyps californianus

Physical characteristics: The California condor is one of the largest birds in North America and one of the rarest. They have black feathers except for a triangle of white under each wing. Adults also have red heads and necks and “collars” of fluffy black feathers at the bottom of its neck. California condors are between 46 and 53 inches (117 and 134 centimeters) long from their beaks to the end of their tails, and they weigh from 17 to 24 pounds (7.7 to 10.9 kilograms).

Geographic range: The last of the wild California condors were captured in 1987 in order to keep them from going extinct, dying out, and so they could be raised in captivity. So far, the birds have



The last of the wild California condors were captured in 1987 in order to keep them from going extinct, dying out, and so they could be raised in captivity. So far, the birds have been returned to the wild in the mountains of California, Arizona, Utah, and in Mexico just south of the border. (© Kenneth W. Fink/Photo Researchers, Inc. Reproduced by permission.)

been returned to the wild in the mountains of California, Arizona, Utah, and in Mexico just south of the border.

Habitat: California condors roost and nest in mountains where strong winds allow them to fly long distances. They search for carcasses in open areas such as grasslands and beaches.

Diet: Not only do California condors eat the carcasses of wild land mammals and farm animals, but they also look for dead ocean animals along the seashore. With their large, powerful beaks they are able to tear open the thick skins of these animals.

Behavior and reproduction: California condors are curious birds, and they often find food by watching what other species are doing. Condors can travel hundreds of miles in a single day in search of food. At the age of five or six years, they find for a mate for life. The female lays one egg every other year in a cave or on a cliff ledge. Both parents incubate, sit on and warm the egg, which hatches after about fifty-six days. The parents care for the young bird long after it learns to fly at the age of six months.

California condors and people: Before Europeans came to America, Native Americans along the California and Oregon coasts admired California condors and honored them in stories and art. They also used the birds' feathers and bones for ceremonies. As Europeans started to settle in the west, they shot, trapped, and poisoned condors because they thought the birds killed young farm animals. By the late twentieth century people realized that this was not true, but it was almost too late to save the birds from extinction.

Conservation status: California condors are listed as Critically Endangered. In 1987, all wild condors were captured to prevent them from going extinct. By the year 2004, breeding programs had increased the California condor population to more than 200, and about half of the population had been released back into the wild. ■

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SHOEBILL

Balaenicipitidae

Class: Aves

Order: Ciconiiformes

Family: Balaenicipitidae

One species: Shoebill
(*Balaeniceps rex*)

family

CHAPTER

phylum

class

subclass

order

monotypic order

suborder

▲ family

PHYSICAL CHARACTERISTICS

Shoebills are large, gray wading birds, birds that search for food in shallow water, that stand about 4.5 feet (1.4 meters) tall. They are named for their enormous bills that look like wooden shoes. Some people call them whale-heads because their heads are shaped like the body of a blue whale. In any case, their huge hooked bills make them easy to recognize. Although shoebills have similarities to herons and storks, they are in a family all by themselves. Scientific tests show that they may be more closely related to pelicans than storks and herons.

Shoebills have gray patches on their yellowish bills. Some people can tell individual shoebills apart by the bill markings. Shoebills' legs and toes are long, and they have unusually large, front-facing eyes with yellow irises. On the back of their heads, they have a small crest that rises when they are frightened or excited. shoebills are about 4 feet (1.2 meters) in length from the tip of their bills to the end of their tails, and their wingspan is 8.5 feet (2.6 meters). Their bills are 7.5 inches (19.1 centimeters) in length and their toes are between 6.6 and 7.3 inches (16.8 and 18.5 centimeters) long. Male shoebills are a little larger than the females.

GEOGRAPHIC RANGE

Shoebills live in central Africa. Most of them are in southern Sudan and northern Uganda. Some are also found in Tanzania, Democratic Republic of Congo, Central African Republic, and Rwanda.

HABITAT

Shoebills live in swamps or beside marshy lakes or rivers where floating ferns, cattails and papyrus (puh-PIE-rus) grow. Papyrus is a tall water plant that covers some swampy areas.

DIET

Shoebills are carnivores, meat eaters, which eat mostly fish. They spread out over the water and keep to themselves when they are fishing. Shoebills have three different ways of fishing. They often stand in the water, waiting for prey to swim by. They can stand almost motionless with their bills pointing downward for a half hour or longer. Sometimes they stand on floating plants and watch for prey. Their long toes spread their weight on the plants, but after a while, the birds gradually sink into the water. If there is an open channel of slow-moving water, shoebills might walk slowly along it. Channels are trails that big mammals make through the thick water plants, opening up places where shoebills would not be able to go otherwise.

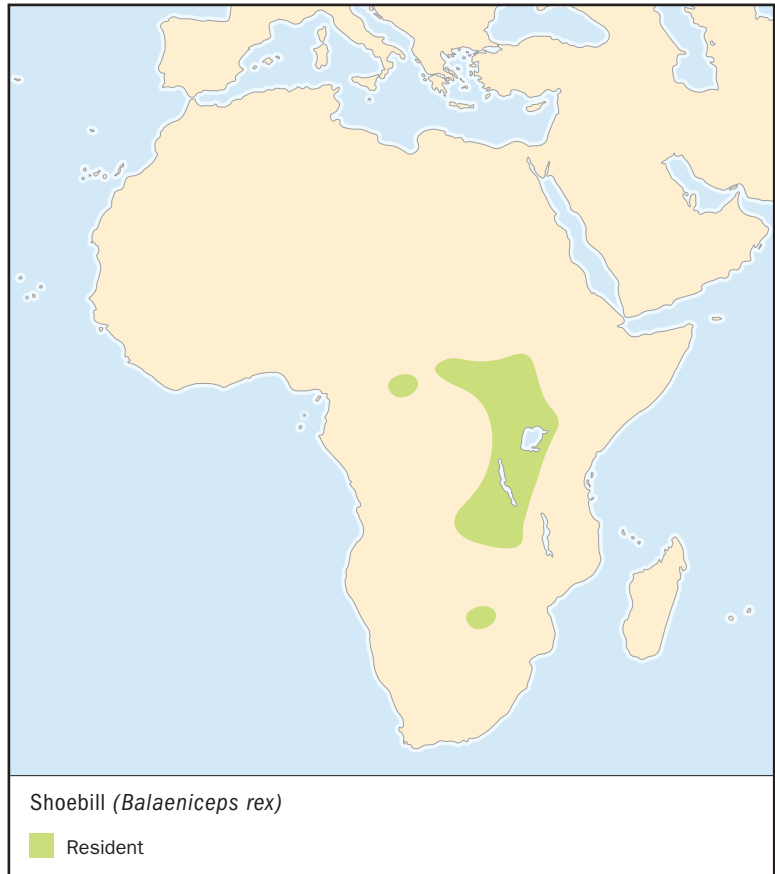
The best place for shoebills to fish is a marsh or pond where the water is drying up. Then large numbers of fish have to swim close together and they are easy to catch. Shoebills eat mostly lungfish and other fish that swim near the surface. But they also catch turtles, water snakes, lizards, frogs, young crocodiles, young water birds, snails, and rodents. They catch fish that are as long as 19 inches (48 centimeters). They prey catch by sight and possibly by hearing, but shoebills are not able to feel the underwater animals with their bills.

When shoebills are fishing, they stand and point their bills straight down so that they can see with both eyes. If they spot a fish or other water animal, they instantly throw their wings forward and their heads downward. Then they quickly snap up the prey with their bills. The hook on their bills helps to hold slippery prey. After swallowing prey, shoebills usually drink some water.



A WILD WAY TO STAY COOL

When people have wet skin, they usually feel cooler than when it is dry. Storks, New World vultures, and possibly shoebills have discovered the same thing. They often squirt their liquid droppings onto their legs to cool off. As the liquid evaporates, the blood in their legs is cooled. Then the cool blood circulates to the rest of the bird's body. Scientists have studied the birds' body temperatures when their legs are wet and when they are dry, and they have found that the birds are cooler when their legs are wet.



BEHAVIOR AND REPRODUCTION

Shoebills usually fly low and not very far, but they can also spread their broad wings and soar high on warm air currents. If a shoebill is frightened while feeding, it flies straight up and flaps slowly and silently away, with its head tucked back onto its breast. But it soon lands again and continues to stand or move along silently.

The shoebills living in each part of Africa have learned when it is best for them to breed. In some areas, the birds wait until the beginning of the dry season, when water levels are getting low and fish are easy to catch. Other areas have two rainy seasons, so the birds have to start breeding while it is raining. Then when the young birds need the most fish, the dry season will be starting.

Each pair of shoebills nests by itself, and they defend a wide territory around the nest. The only time they are noisy is

during courtship displays, where they bow to each other, clatter their bills, and squeal or whine. The male and female both help to build the nest out of water plants. They start by building a floating platform that is up to 10 feet (3 meters) across. On top of this platform, they build a nest that is about 4.5 feet (1.4 meters) across. In some places, nests are built on termite mounds that stick out of the water. The birds work the plant stems into the nest by jumping up and down on them and poking them in with their long toes.

Females lay between one and three dull white eggs. The parents take turns sitting on the eggs. On very hot days, they swallow cool water and regurgitate (re-GER-jih-tate) it, spit it up, on the eggs to keep them cool. When the chicks hatch, the parents care for them by shading them from the sun, cooling them with regurgitated water, protecting them from predators, and catching food for them. When a parent arrives at the nest, the downy chicks beg to be fed by making a little noise and pecking at the adult's legs or bill. The adult then regurgitates some food, and the young birds eat out of the parent's bill.

The young stay in the nest for as long as 105 days. During the first thirty-five days, they cannot stand, and one adult stays with them at all times. After that, both parents leave to hunt for food for the growing chicks. By ninety-five days, the young birds wander off the nest, and they can fly about ten days later.

SHOEBILLS AND PEOPLE

Shoebills appear in wall paintings and hieroglyphics (high-ruh-GLIH-fix), symbol writing, used in ancient Egypt. People told scary stories about shoebills, and the birds were protected because people were afraid to kill them. There is even a myth that people who are fishing will have bad luck if they see a shoebill or mention its name.

Some African countries honor shoebills by putting their pictures on postage stamps. However people also cause problems for shoebills. Farmers raising rice and other crops destroy



When shoebills are fishing, they stand and point their bills straight down so that they can see with both eyes. When they spot prey, they instantly throw their wings forward and their heads downward, and quickly snap up the prey with their bills. (Robert J. Huffman/Field Mark Publications. Reproduced by permission.)

their habitat, wetlands are drained so people can build on them, and their nesting swamps are sometimes burned to make it easier for people to fish and hunt there. Some people catch the birds and sell them to zoos, and others hunt them for food.

CONSERVATION STATUS

The shoebill is listed as Near Threatened, which means it could become endangered in the near future. The birds are so secretive that scientists have a hard time counting them, but there may be fewer than 15,000 shoebills left in the wild. Although laws protect the shoebill, it is still threatened by people who break the laws. Many local people are working to help the wildlife. By protecting the wild animals, including shoebills, tourists are encouraged to visit their area in order to see the animals. Tourists bring money by staying in hotels, eating at restaurants, buying souvenirs, and signing up for boat tours where they can see animals in the wild.

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IBISES AND SPOONBILLS

Threskiornithidae

Class: Aves

Order: Ciconiiformes

Family: Threskiornithidae

Number of species: 32 species

family

CHAPTER

phylum

class

subclass

order

monotypic order

suborder

▲ family

PHYSICAL CHARACTERISTICS

Ibises and spoonbills are alike in many ways, but their long bills are very different. The ibises' bills are thin and they curve downward. Spoonbills' spoon-shaped bills are flat and wide at the tip. Both ibises and spoonbills are medium to large wading birds, birds that walk through shallow water in search of food. Most of them have bare faces and throats, they have long necks and legs, and many of them have colorful feathers. They range in length from 19 to 43 inches (48 to 110 centimeters) from the tip of their bills to their tails, and they weigh between 1.5 and 5.5 pounds (0.5 and 2.5 kilograms).

GEOGRAPHIC RANGE

Ibises and spoonbills are spread widely across the world where the temperatures are moderate or warm.

HABITAT

Most ibises and spoonbills live in wetlands or in wooded areas near water, but some can be found in dry grasslands and on mountains. They are also attracted to farms and rice fields.

DIET

Spoonbills and ibises usually use their sensitive bills to hunt by touch in shallow water or mud. They eat mostly small fish, water insects, frogs, shrimp, and other small water animals. Some of them also eat carrion, dead animals, and feed at garbage dumps.

BEHAVIOR AND REPRODUCTION

When spoonbills and ibises fly, they stick their necks and legs straight out. They are sociable birds, and they usually feed and roost in large groups. It is not unusual to find them with other species of wading birds, including storks and herons. Many of them also move around with big flocks and they breed in large groups called colonies. The parents share the work of building the nest, sitting on the eggs, and feeding as many as five chicks.

IBISES AND SPOONBILLS, AND PEOPLE

For 5,000 years, ibises have been honored in the religions of some people, while others thought the birds brought bad luck. Ibises were carved on ancient Greek coins, and in the Middle Ages, noblemen ate ibises as a special treat. In the 1800s, some species of ibises and spoonbills were hunted for their beautiful feathers.

CONSERVATION STATUS

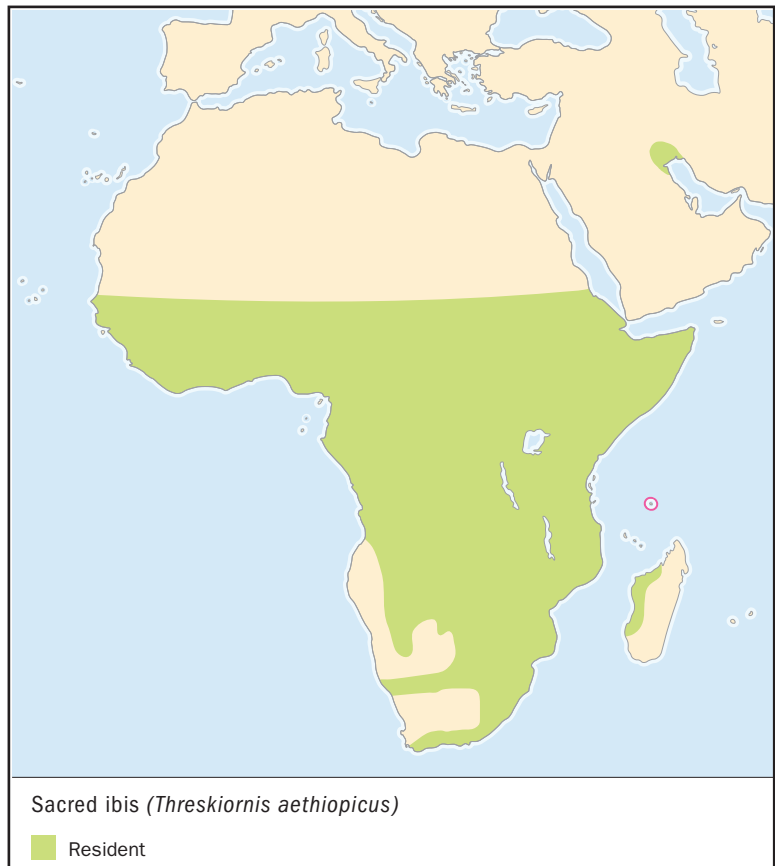
Many spoonbills and ibises are threatened because their wetlands are being drained and taken over by people for building projects and farms. In some countries, people hunt them, and they are still being harmed by dichloro diphenyl trichloroethane, DDT, an insect poison that causes the birds' eggshells to break easily. The reunion flightless ibis became extinct in 1705, and four other species are listed as Critically Endangered, which means they are facing an extremely high risk of extinction in the wild. Two more species are Endangered, facing a very high risk of extinction in the wild, and several more are close to being threatened.



SACRED FIGHTERS

At nesting time, male sacred ibises use their bills for more than finding food. They arrive at the breeding area before the females. Then they fight for the best nesting places with their bills, and fly at other males to try to knock them off their perches. When the females arrive, more fighting and chasing takes place, until they choose mates. Sacred ibises build platform nests of sticks and twigs and line them with soft plants. But sticks are often in short supply, so the birds fight over them and steal them from other nests in the colony. Eventually, they settle down and raise their families.

SPECIES ACCOUNTS



SACRED IBIS *Threskiornis aethiopicus*

Physical characteristics: Sacred ibises are medium-sized wading birds that are covered with white body feathers. The rest of the bird is black, including its bill and the scaly skin on its naked neck, head, and long legs. They also have lace-like black feathers on their backs that cover their tails. Sacred ibises are between 25.5 and 35 inches (65 to 90 centimeters) long from bill tip to tail, and they weigh about 3.3 pounds (1.5 kilograms). Males and females look alike, but the males are a little larger than the females.

Geographic range: Most sacred ibises live in the southern two-thirds of the African continent, south of the Sahara desert, and on the

western side of the island of Madagascar. Large colonies also once lived in the marshes of southern Iraq, but the marshes were drained and many of the birds disappeared.

Habitat: Sacred ibises are found in coastal lagoons, marshes, damp lowlands, and farmlands. They live in both dry and flooded grasslands and along the muddy shores of lakes and rivers. Sometimes they wander into deserts or feed at garbage dumps and in recently burned areas.

Diet: Groups of sacred ibises often feed in shallow pools where they catch little fish, insects, worms, frogs, shrimp, and other small creatures. They can bury their bills up to their eyes as they probe deeply in the mud. They also peck for insects on dry land and follow swarms of grasshoppers and locusts. They sometimes eat seeds and other plant parts, eggs, nestlings, small mammals, carrion, and garbage.

Behavior and reproduction: Sacred ibises have strong wing beats and fly in lines or in V-formations. They can soar high, but they usually fly low over the water. After breeding inland, they often move to coastal areas during the dry season. They are usually quiet birds, but they make grunting and croaking noises during breeding season. They build stick nests and the females lay three or four eggs. Both parents help to raise the young.

Sacred ibises and people: Drawings from ancient Egypt show Thoth, their god of wisdom and knowledge, as a man with the head of a sacred ibis. The Egyptians painted murals and carved statues of ibises, and they even made mummies of the birds. Unfortunately, the sacred ibises died off from habitat loss in Egypt by the beginning of the nineteenth century.

Conservation status: Sacred ibises are not threatened worldwide, but they are no longer able to live in some of the places where they once lived. ■



Sacred ibises can bury their bills up to their eyes as they probe deeply in the mud for small fish, insects, worms, frogs, shrimp, and other small creatures. (Illustration by Brian Cressman. Reproduced by permission.)



ROSEATE SPOONBILL

Ajaia ajaja

Physical characteristics: Roseate spoonbills are one of the most unusual looking wading birds species. They can easily be identified by the bright pink feathers on their wings and legs and their long, flattened bills. They have bare heads and red eyes. Roseate spoonbills are about 31 inches (80 centimeters) long from bill tip to tail, and they weigh about 3.3 pounds (1.5 kilograms).

Geographic range: Roseate spoonbills live in the eastern two-thirds of South America, in Central America, and along both coasts of Mexico. In the United States they breed in Texas, Louisiana, and Florida and they spread out to many places across the country after breeding.

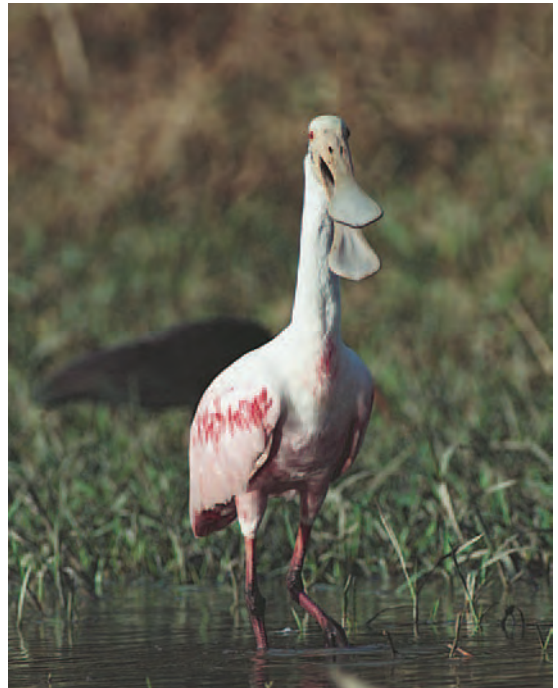
Habitat: Roseate spoonbills usually stay near water, and they prefer to nest on islands. They breed along seacoasts, in estuaries where fresh water and salt water mix, and in mangrove swamps. They also breed inland in freshwater swamps, on islands in rivers and lakes, in marshes, and on wet prairies. They feed in shallow water near their nesting places, and also in canals, ponds, ditches, tidal pools, and wherever else they can find shallow water.

Diet: Small water creatures, including fish, insects, crayfish, and shrimp are the main foods of roseate spoonbills. They usually walk slowly and the swing their bills as they hunt for food. They also dig in the mud or chase after schools of fish.

Behavior and reproduction: Roseate spoonbills usually feed in large groups and roost together at night. At nesting time, they form large colonies and build nests of loosely woven sticks in bushes or trees. The females lay an average of three eggs, and both parents help raise the chicks.

Roseate spoonbills and people: In the 1800s it became popular among some women to use spoonbill wings as fans to cool themselves. Many spoonbills were killed for their feathers. Finally, laws were passed to stop the killing of spoonbills and other wading birds.

Conservation status: Between 1850 to 1920, the population of roseate spoonbills in the United States decreased rapidly until there were only about twenty-five nesting pairs left in the country. Since laws were passed to protect them, the birds are making a good comeback. They are still considered a Species Of Special Concern in the U.S., but they are not listed as endangered anywhere. ■



Roseate spoonbills call with a sound made by clacking the top and bottom of its beak together. (© Lawrence E. Naylor/Photo Researchers, Inc. Reproduced by permission.)

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FLAMINGOS

Phoenicopteriformes

Class: Aves

Order: Phoenicopteriformes

One family: Phoenicopteridae

Number of species: 5 species

monotypic order

CHAPTER

phylum

class

subclass

order

● **monotypic order**

suborder

family

PHYSICAL CHARACTERISTICS

The five species in the Phoenicopteridae family are all flamingos. All five species have oval-shaped bodies with pink or crimson-red feathers covering their bodies. Their black flight feathers can be seen when they spread their wings. Flamingos have exceptionally long legs and necks, and their large bills curve downward in the middle. The upper part of the bill is smaller than the lower part, which is very unusual for birds. Their length from bill tip to tail varies between 31.5 to 63 inches (80 to 160 centimeters), and they weigh between 5.5 to 7.7 pounds (2.5 to 3.5 kilograms). The greater flamingo is about five feet (1.5 meters) tall. The smallest one, the lesser flamingo, is only about 3 feet (0.9 meter) tall.

GEOGRAPHIC RANGE

Most flamingos live in South America and Africa. They also live in the Caribbean, southern Europe, southwest Asia, the Middle East, Pakistan, and India. Flamingos sometimes visit the Florida Keys and other places in southeastern United States.

HABITAT

Flamingos usually breed at large lakes, but they can feed in a large variety of shallow lakes and lagoons, either inland or coastal. The bodies of water can be small and are usually salty (even saltier than ocean water). But some flamingos also feed in fresh water or in rice fields. They find their food

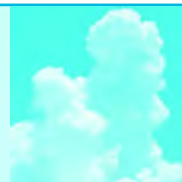
in lakes from sea level all the way up to 14,000-foot (3,500-meter) mountains. The Andean flamingos in South America feed on lakes loaded with natural chemicals (chlorides and sulfates) that other birds avoid. For that reason, the flamingos do not have to compete with other birds for the food in those lakes.

DIET

A flamingo feeds with its head upside down in the water. It sweeps its bill from side to side. The outer edges of both the upper and lower part of its bill are lined with two rows of comblike bristles called lamellae (luh-MEL-ee). As the bird sucks water into its mouth, the lamellae keeps large sea creatures from going in, while letting the foods it eats get through. Flamingos pump the water in and out with their tongues as they swallow their food. The lamellae on the smaller flamingo species are close together, and they keep out everything except algae (AL-jee), diatoms, and other very tiny organisms. The larger flamingo species have fewer lamellae and they eat a more varied diet including insects, snails, and brine shrimp.

BEHAVIOR AND REPRODUCTION

Flamingos fly with their long necks and legs sticking straight out. When they find a good feeding spot, they often gather in enormous flocks. Sometimes the flocks number more than a million birds. Most flamingos do not migrate regularly, but they move when water levels change in their habitats. Everything they do depends on rainfall and drought patterns. When the water level is just right in a lake, hundreds of thousands of flamingos might breed there at the same time. In muddy areas, their nests are towers as tall 16 inches (40 centimeters) made of mud, stones, and shells. In rocky areas, the females lay their eggs right on the ground. Each pair has just one chick that is cared for by both parents. It takes the chicks between sixty-five and ninety days to learn to fly and feed themselves.



WHY DO FLAMINGOS FLOCK?

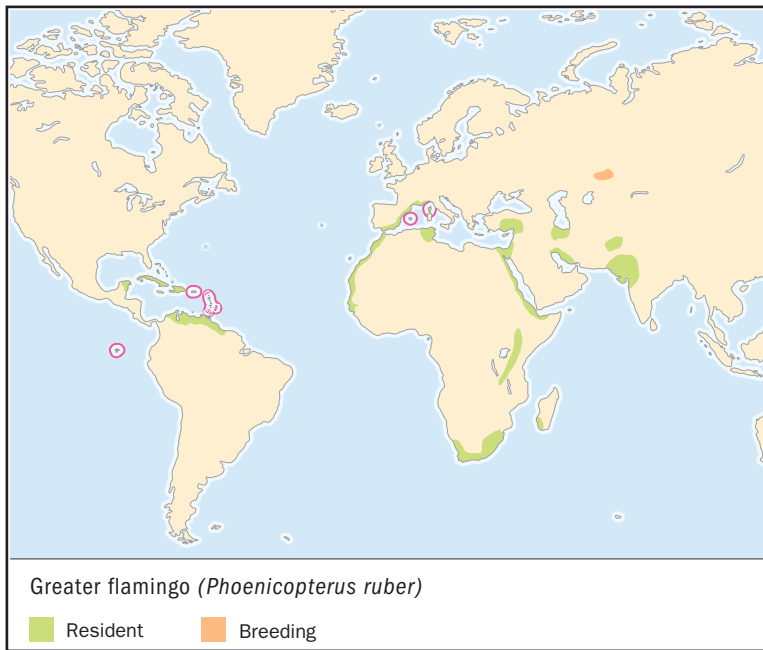
Flamingos gather in enormous flocks for several reasons, the most important being protection from enemies. An eagle has a hard time sneaking up on them with two million eyes on the lookout. When flamingos eat together, they keep the food stirred up and moving around where the birds can easily suck it in. Because they lay their eggs at the same time, they can put their chicks in a big flock with a few adult “babysitters.” Then the rest of the parents can fly off to eat. Flamingos sleep, fly to new places, and do practically everything else at the same time as the other flamingos.

FLAMINGOS AND PEOPLE

Pictures of flamingos appeared on cave drawings 7,000 years ago. People have hunted them and eaten their eggs for thousands of years, but many flamingos live in places that are hard for people to reach, and many others are protected by laws.

CONSERVATION STATUS

Four of the five species of flamingos are in trouble. The Andean flamingo is listed as Vulnerable, facing a high risk of extinction. The James's, Chilean, and lesser flamingos are listed as Near Threatened, not currently threatened, but could become so.



GREATER FLAMINGO

Phoenicopterus ruber

SPECIES ACCOUNT

Physical characteristics: Greater flamingos are the largest species of flamingo. Most greater flamingo adults are white with a little pink in color, but those living in the Caribbean area are rosy red (the color depends on the food they eat). Their flight feathers are black and their bills are pink with a black tip. They are between 47 and 57 inches (1.2 to 1.5 meters) long from bill tip to tail, and they weigh between 4.6 to 9.0 pounds (2.1 to 3.4 kilograms). The males are larger than the females.

Geographic range: Greater flamingos live mostly near the seacoasts and on islands in the Caribbean, Africa, Asia, and Europe. There are some big inland populations in eastern Africa and Pakistan. Greater flamingos sometimes visit the Florida Keys and other places in southeastern United States.

Habitat: Greater flamingos usually breed on islands or along the shores of large lakes, but they can feed in a large variety of shallow lakes and lagoons, either inland or coastal. The bodies of water are

The greater flamingos that breed the farthest north in Europe and Asia migrate south in fall and fly north again in spring. But most of these birds do not migrate. Instead, they move around in huge flocks as the water levels change during rainy and dry seasons. (© Art Wolfe/Photo Researchers, Inc. Reproduced by permission.)



usually salty, but some greater flamingos also feed in fresh water or in rice fields.

Diet: Greater flamingos sweep their heads upside down in shallow water and pump the water in and out of their bills with their tongues. Small water organisms get sucked into their mouths between the comblike bristles in their bills. Their food includes insects, brine shrimp, snails, seeds, algae, and diatoms.

Behavior and reproduction: The greater flamingos that breed the farthest north in Europe and Asia migrate south in fall and fly north again in spring. But most of these birds do not migrate. Instead, they move around in huge flocks as the water levels change during rainy and dry seasons.

If the conditions are not just right at a breeding lake, the flamingos may not breed at all. Or they might all go off and find a new place

to breed. If a breeding site is exceptionally good, the birds may raise two chicks in the same year, one right after the other.

When a pair of greater flamingos builds a mud nest, both help with the job. If they nest on a rocky island, however, the female lays her one egg on the ground. The parents take turns sitting on the egg for about a month. When the chick hatches, they feed it a nourishing red liquid that they make in their throats. The chicks bark like puppies when they want to be fed. Parents know their young by their voices and will feed no other chicks, even when the young are gathered in groups. The parents feed them the red liquid meals for four weeks, and then they start to feed them food that they regurgitate (cough up) from their stomachs. By the age of ten to twelve weeks, the young birds can fly off and feed themselves.

Greater flamingos and people: Thousands of years ago, the Egyptians used greater flamingos as the symbol for “red” in their picture writing. They also called flamingos the living form of Ra, their sun god. Roman emperors ate flamingo tongues as a specialty, while Roman poets wrote that it was a shame to kill such beautiful birds for their tongues. Some people still kill greater flamingos for sport or to eat their meat and eggs, but many of the birds live in protected or hard-to-reach areas. Since the invention of plastic, some people have enjoyed having flocks of pink plastic flamingos on their lawns.

Conservation status: Greater flamingos are not listed as threatened. Their numbers have been going down in the Caribbean area and going up in southwestern Europe. The worldwide population of greater flamingos changes often, depending on the rains and whether or not a year is good for breeding. ■

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order

CHAPTER

DIURNAL BIRDS OF PREY

Falconiformes

Class: Aves

Order: Falconiformes

Number of families: 3 families

PHYSICAL CHARACTERISTICS

The birds in the order Falconiformes are called raptors (RAP-ters), or birds of prey, meaning they hunt animals for food. The raptors in the order Falconiformes include hawks, eagles, Old World vultures (from Africa, Asia, and Europe), falcons, and secretary birds. These raptors hunt during the day, and have beaks and feet that are made for hunting. Their beaks have sharp hooks that can tear meat. Their legs are generally short, and their feet have long, curved claws called talons (TAL-unz) that can grab and kill prey. These raptors have excellent eyesight, and can see about eight times better than humans.

Most of the birds in the Order Falconiformes have compact bodies, rounded heads, and short necks. Their sizes range from tiny falconets that weigh just over a pound (28 grams) to griffon vultures that can weigh as much as 26 pounds (12 kilograms). The secretary bird has the longest legs and stands 4 feet (1.2 meters) tall. Female raptors are usually larger than the males.

Raptors' feathers are mostly gray, brown, or black. Some have tan or white chests, often with brown spots or streaks. These colors help camouflage the birds as they sneak up on prey. Many of them have bristles (stiff feathers) around their beaks that may protect their eyes while feeding or help them feel the prey they have caught. Most raptors have large flight feathers and are excellent fliers.

GEOGRAPHIC RANGE

Falconiformes live on every continent except Antarctica.

phylum

class

subclass

● **order**

monotypic order

suborder

family

HABITAT

Most raptors are land birds, although some of them snatch fish from lakes or oceans. They live in every kind of land habitat, including the tundra of the far north, forests, grasslands, wetlands, deserts, mountains, farmlands, seacoasts, and even large cities.

DIET

Except for vultures, raptors kill the animals they eat. Most raptors are not fussy—they will eat any animal they can catch. These animals include mammals, birds, fish, reptiles, insects, frogs, crabs, and snails. Some also eat eggs and garbage, and vultures eat carrion (dead animals). A few of the birds have special diets and eat only one or two kinds of prey.

Each type of raptor has a special way of hunting. A falcon usually catches its prey on the wing. It grabs the prey in midair with its talons and kills it with a bite to the neck. A small hawk usually sits on a perch and makes short flights to catch a mouse or other prey on the ground. The hawk squeezes it to death with its strong feet. Then it takes the prey to a perch to pluck it before eating it. Larger hawks and eagles hunt by riding high on warm air currents, and they have to wait until the air warms up each morning before flying off.

Some of the birds in the Falconiformes group have unusual ways of hunting. Kestrels are little falcons that hover in open areas, hunting for insects or small mammals. Secretary birds are in a family by themselves, and they are quite different from hawks and falcons. They are big birds with long legs and they usually run after their prey. When they catch it, they kick it to death.

BEHAVIOR AND REPRODUCTION

Raptors have simple calls that are often high-pitched and may sound something like “keer-keer.” Pairs often call to each other to say, “I’m here—where are you?” At migration time, huge flocks of raptors journey north and south together. Hawks that breed in northern areas make up the biggest flocks, but some falcons also make long migration trips.

Most raptor pairs live by themselves. They have to protect large territories in order to find enough food. But some of the Old World vultures and smaller falcons nest and feed together. Most falcons make simple nests on the ground, but some hawks and eagles build large nesting platforms that can be several feet high. Usually, the males hunt for food while the females sit on

the nest. The chicks of the largest raptors stay in the nest for several months after hatching. Most of the larger raptors raise only one chick a year, and some do not breed every year.

FALCONIFORMES AND PEOPLE

From prehistoric times, birds of prey have been a part of people's lives. Many people admire the birds, and some even worshiped them as part of their religion. But others are afraid of them or think they are bad because they kill other animals. Pictures of raptors are used to symbolize power, freedom, strength, and speed. The bald eagle is the national bird of the United States, and birds of prey appear on flags, coins, and shields in many countries.

Many farmers appreciate the way raptors kill mice and other animals that eat the grain in their fields. But other people blame the birds for killing farm animals, pets, and racing pigeons. Usually the damage done by the birds is not nearly as great as some people think it is. In the United States and many other countries, it is illegal to kill these raptors, but some people do it anyway.

In some parts of the world, people participate in a sport called falconry. Falconers are hunters who train falcons and hawks to catch pheasants, rabbits, and other wild game animals for their trainers. The birds are rewarded with a treat, but they do not eat the animals they kill.

Raptors usually fly long distances by riding on rising bubbles of warm air called thermals. They find the thermals above land, so they do not fly long distances over water. At migration time, bird watchers gather at places such as Panama where the land narrows. Thousands of hawks may pass over the area every hour for weeks.

Some raptors are able to live in cities because they can find conditions similar to wild habitats. For example, peregrine (PER-uh-grun) falcons nest on cliffs in the wild. Now they have discovered that window ledges on skyscrapers make great nesting places too. There are plenty of pigeons and songbirds for



AT THE TOP

Raptors are the top predators in many habitats. That means that nothing eats them. It may sound like an easy life, but raptors have to be skillful fliers in order to catch a mouse zipping along the ground or a bird flying past them. When a bald eagle spots a fish swimming below, it has to drop through the air at just the right speed and judge where the fish will be when it hits the water. If all goes well, the eagle will lock the slippery fish in its talons and swoop up. But raptors are not always that lucky. The prey animals often get away and the raptor has to keep hunting.

the peregrines to catch on the wing. And people are thrilled to look out the window of a tall office building and see a falcon zooming past.

CONSERVATION STATUS

Of the approximately 300 species in the Falconiformes order, thirteen are listed as Critically Endangered, facing an extremely high risk of extinction, or Endangered, facing a very high risk of extinction. Another fifty-five are listed as Vulnerable, facing a high risk of extinction, or Near Threatened, close to becoming threatened with extinction. One reason so many are in trouble is that a lot of habitats have changed from forests and grasslands to farms and cities. When that happens, the prey animals that live in the habitats often disappear—the raptors that lived there cannot find the food they need, so they often move away or die off.

When raptors can no longer live in an area, this indicates that an environment may no longer be healthy for the all of the wildlife and humans living there. For example, if some poisonous chemicals get into a lake, they get passed along from little fish to bigger fish, as the fish eat one another. When an eagle eats a large fish from the lake, it takes in all of the poison passed along to the fish. In the 1950s and 1960s, bald eagles in the United States were laying eggs with such thin shells that they broke before hatching. It took some detective work by scientists to discover that the birds were being harmed by an insect poison called DDT. The poison was being passed along to the birds from the animals they ate, and these poisons were making the eggshells thin. DDT is now banned in the U.S. and the eagles are making a comeback. But it is still being used in many other countries, and conservationists are working hard to change that.

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HAWKS AND EAGLES

Accipitridae

Class: Aves

Order: Falconiformes

Family: Accipitridae

Number of species: 236 species

family

CHAPTER

phylum

class

subclass

order

monotypic order

suborder

▲ family

PHYSICAL CHARACTERISTICS

This large family includes raptors (RAP-ters), birds of prey, of many shapes and sizes. One of the smallest species is the South American pearl kite that weighs less than 3.5 ounces (100 grams). At the other end is the Himalayan vulture weighing 26 pounds (12.5 kilograms). Raptors have keen eyesight and strong flight feathers.

Most of these raptors hunt during the day, and they kill the animals they eat. They can grab and kill prey with their curved talons (TAL-unz), claws, and tear meat with their hooked beaks. The Old World vultures from Europe, Asia, and Africa are the exception—they have weaker feet than the other birds in this family, and most of them are not able to kill the animals they eat.

Male and female raptors usually look alike, but the females are larger than the males. The birds' feathers are mostly gray, brown, or black, and some have lighter-colored chests, often with brown spots or streaks.

GEOGRAPHIC RANGE

Hawks and eagles are found on all continents except Antarctica.

HABITAT

Sea eagles catch fish along coasts, but most raptors are land birds. They live in every kind of land habitat, including the tundra of the Far North, forests, wetlands, deserts, grasslands,

mountains, and farmlands. They can also live in towns and cities with parks.

DIET

All hawks and eagles are carnivorous, meat eaters, and, except for vultures, they eat only freshly caught prey. Most of them eat any animal they can catch, but some have very special diets. For example, crab hawks eat crabs found in mangrove forests, snail kites eat snails, and ospreys eat fish.

BEHAVIOR AND REPRODUCTION

The hawks with short wings and long tails are good at flying among the trees. Those with long, broad wings and broad tails are soaring birds that ride the air current to great heights. Some hawks, especially those that breed in cool climates, migrate long distances in fall and spring. Others live year round in their breeding areas.

Most raptors defend a breeding territory from other birds of their species, and they usually build their nests out of sticks. Large hawks and eagles lay one or two eggs, and the smaller species lay three or more. After the chicks can fly, they depend on their parents for several more weeks while they gradually learn to hunt.

HAWKS, EAGLES, AND PEOPLE

Thousands of years ago, hawks and eagles were admired for their hunting skills and were even thought of as messengers of the gods. As early as 4,000 years ago, captive hawks were used as hunters to catch rabbits and other animals for their trainers. In modern times, some people kill hawks that are suspected of harming farm animals, but many other people enjoy watching them in their local habitats and on their long migrations.

CONSERVATION STATUS

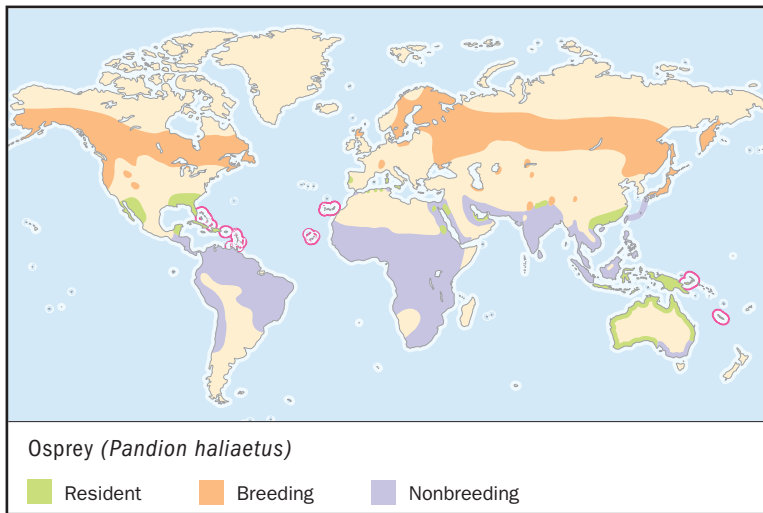
Of the 236 species of Accipitridae, nine are listed as Critically Endangered, facing an extremely high risk of extinction in the wild, and four as Endangered, facing a very high risk of extinction in the wild. Another forty-five are listed as Vulnerable,



SKY WOLVES

Groups of birds are usually called flocks, but Harris's hawks act more like a pack of wolves. As many as six hawks fly in a line. When the one in front spots prey, it swoops to kill it. If the prey gets away, the next one in line swoops down. They take turns until the prey is tired and easily caught. Then they all eat together. Sometimes the birds attack their prey from different directions all at once. If the prey escapes under a bush, one hawk will crawl in and scare it out so the others can catch it. Together, the "pack" can catch a jackrabbit that weighs twice as much as a Harris's hawk.

facing a high risk of extinction in the wild, or Near Threatened, close to being threatened with extinction. Habitat loss is the main reason these birds are in trouble. In many countries, hawks and eagles are protected by law, and conservationists are doing what they can to preserve the habitats that these birds need.



OSPREY

Pandion haliaetus

SPECIES ACCOUNTS

Physical characteristics: Ospreys are medium-sized hawks, about 22 inches (56 centimeters) long from bill tip to tail. Their feathers are mostly black on the back and white on the front with a speckled “bib.” Ospreys have sharply-hooked beaks and very strong feet with sharp talons that are good for grabbing slippery fish. The outer toe on each foot can be swung backward for an even stronger grip.

Geographic range: Ospreys that breed farthest north in Alaska, Canada, and northern Europe and Asia migrate to South America, Africa, and India for the winter. Ospreys live year round in Australia, the southern United States, and eastern China.

Habitat: Ospreys live near water of all kinds, both inland and near the ocean, including marshes, lakes, reservoirs, bays, seashores, rivers and estuaries, where salt water and fresh water mix.

Diet: Ospreys are sometimes called fish hawks because fish is about all they eat. They glide over shallow water and dive down feet first to grab fish with their sharp talons. By holding heavy fish with both feet, ospreys can carry them to land. Using their sharp beaks, ospreys tear the fish into bite-sized pieces.

Ospreys are sometimes called fish hawks because fish is about all they eat. They glide over shallow water and dive down feet first to grab fish with their sharp talons. (Illustration by Barbara Duperron. Reproduced by permission.)



Behavior and reproduction: Ospreys often build stick nests in trees near water. But they also nest on the ground on small islands and on sea cliffs. Females usually lay three eggs. Males bring fish to the females while they stay on the nest. Females keep the eggs warm and shelters the chicks from cold winds and the sun's hot rays. After the young birds can fly, they stay with their parents for a while. If their parents migrate, the young birds will fly south with them.

Ospreys and people: Biologists build nesting platforms on tall poles in the water for the ospreys. The birds like to nest on the platforms, because they are safe from raccoons and other mammals that steal their eggs.

Conservation status: Ospreys are not threatened. ■



HARRIS'S HAWK

Parabuteo unicinctus

Physical characteristics: Harris's hawks have mostly dark brown feathers, but their shoulders are red-brown and their tail feathers are black with white tips. Their length is between 19 and 22 inches (48 to 56 centimeters) from the bill tip to tail.

Geographic range: Harris's hawks live in southwestern United States, Mexico, Central America, and South America.

Habitat: As long as there is water nearby, Harris's hawks can live in desert areas. Some of the birds live in grasslands and a few use

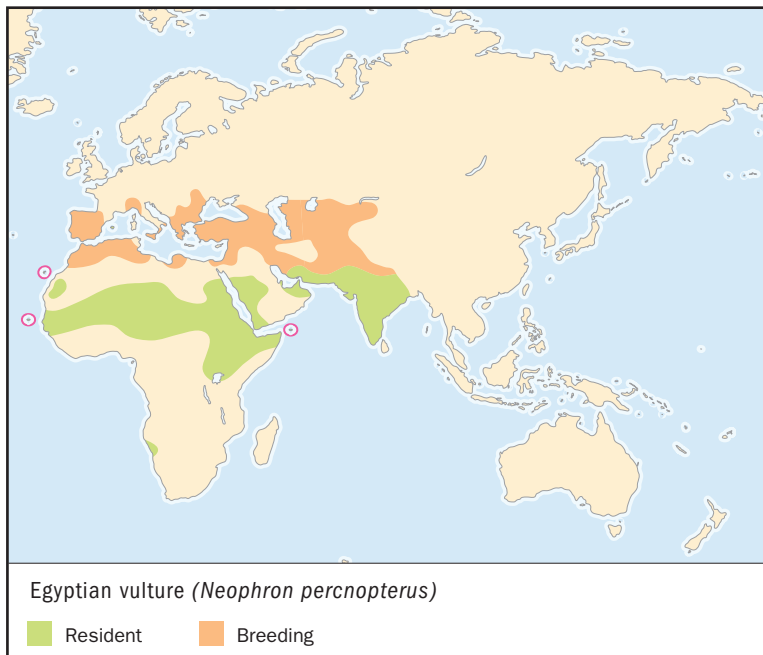
wetlands. They also need an area where there are a few trees, tall saguaro cacti (KACK-tie, or KACK-tee), or electrical transmission towers where they can build nests.

Diet: Harris's hawks eat mostly hares, rabbits, birds, and lizards. They can kill prey that is large for their size because they hunt in groups of two to six hawks.

Behavior and reproduction: Harris's hawks are more sociable than most hawks. They build stick nests and line them with moss, grass, and leaves. Females lay between one and four eggs. Males bring food to the females and help defend the nest, and occasionally males will sit on the eggs. In desert areas, females must shade the eggs and chicks from heat. Often other Harris's hawks, usually young birds that are not breeding, help to feed the chicks and guard the nest. Some pairs raise two families in the same year. Often the young of the first nest help to raise the second set of chicks.

Harris's hawks and people: Biologists and bird lovers are fascinated by Harris's hawks. Because the hawks are so sociable, they behave in ways that are unusual for birds and interesting to study.

Conservation status: Harris's hawks are not threatened. ■



EGYPTIAN VULTURE

Neophron percnopterus

Physical characteristics: At about 4 pounds (1.8 kilograms), the Egyptian vulture is one of the smaller Old World vultures. Their length is about 25 inches (63.5 centimeters) from bill tip to tail. They have bright yellow skin on their faces and a “mane” of white feathers on their heads. The rest of their feathers are also white, except for black flight feathers.

Geographic range: Egyptian vultures live in Africa and India year round. The birds that breed in northern Africa, Europe, and Asia, north of India, migrate to warmer areas after breeding.

Habitat: Egyptian vultures like dry, wide-open lands, including deserts, grasslands, farm fields, and pastures. They also live in cities, where people welcome them as a clean-up crew.

Diet: Like all vultures, Egyptian vultures are scavengers, eating mostly carrion, dead animals. They also eat garbage, insects, eggs, and occasionally live prey. They are famous for their ability to break open

Egyptian vultures build big, messy stick nests on rocky ledges or in caves. Where there are no rocks, they build their nests in trees. (Illustration by Barbara Duperron. Reproduced by permission.)



thick ostrich eggs by throwing stones at them. Very few birds know how to use tools that way.

Behavior and reproduction: Egyptian vultures usually build big, messy stick nests on rocky ledges or in caves. Where there are no rocks, they build their nests in trees. They usually lay two eggs, and, unlike most raptors, the parents regurgitate, bring up from the stomach, food to feed the chicks.

Egyptian vultures and people: An Egyptian pharaoh once made a law that anyone who killed an Egyptian vulture would be put to death. He thought the job these birds did to clean up people's waste was very important. People still value the bird for that reason. More than a century ago, the bile from Egyptian vultures' livers was made into a medicine and their skins were tanned to make leather.

Conservation status: Egyptian vultures are not threatened. ■

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family CHAPTER

SECRETARY BIRD

Sagittariidae

Class: Aves

Order: Falconiformes

Family: Sagittariidae

One species: Secretary bird
(*Sagittarius
serpentarius*)

PHYSICAL CHARACTERISTICS

A secretary bird's long legs resemble those of a stork, yet it has the head and body of a bird of prey. Some people call it a "marching eagle," even though it is not an eagle. It is the only bird in its family, because there are no other birds similar enough to it. It is 4 feet (1.2 meters) tall, making it the tallest bird of prey. It has strong, thick claws that are used to kill prey and a hooked, pale gray beak. The large areas of bare skin on its face are orange.

A secretary bird's head, neck, and body feathers are mostly light gray or white. It does, however, have a crest of droopy black feathers that it can raise when it is excited. The bird has black flight feathers and black feathers covering the top half of its legs. The bird's tail feathers are black and white and the two middle tail feathers are twice as long as the others.

The male and female secretary birds look alike. The sizes of the birds in a pair may vary, the male being bigger at times, the female bigger at other times. The length from their beaks to the end of their long tails ranges from 49 to 59 inches (1.2 to 1.5 meters). They weigh between 7.5 and 9.5 pounds (3.4 and 4.3 kilograms).

GEOGRAPHIC RANGE

They live south of the Sahara Desert in Africa, except for the heavily wooded areas in western Africa.

phylum

class

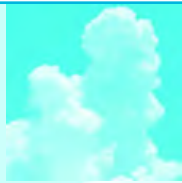
subclass

order

monotypic order

suborder

▲ **family**



MYSTERY NAME

Depending on which book or website you read, you will find different origins of the secretary bird's strange name. Some say the bird got its name from its crest, which looks like the quill pens that old-time secretaries kept handy in their hair. The secretaries could pull out a quill whenever it was time to write something. Another theory is that the name comes from the Arabic words *saqu ettair*, meaning hunter bird. Others say the bird was named for its croak, which sounds a little something like its name.

HABITAT

Secretary birds live wherever there are plenty of prey animals available in a variety of grasslands and farmlands. They may enter deserts after a heavy rain, and they sometimes go to clearings in forests. They roost and nest in low trees growing in the grasslands. They cannot live in heavy forests, because it is difficult for them to fly among the trees.

DIET

Secretary birds usually do not fly as they hunt for prey. They often walk along in the tall grass, trying to frighten little animals out of hiding, to then stomp or kick the animals to death. The creatures they kill this way can be moths, grasshoppers, other large insects, and mammals as small as mice or as big as hares and mongooses. Lizards and game birds are also a part of their diet. When they find small insects and eggs, they snatch them with

their beaks. The exact diet of secretary birds depends on where they live; locusts and rodents are mostly found in one region, while beetles and lizards are plentiful in another area. When secretary birds see flames, they run toward the fire. They do this because they know that hundreds of small prey animals flee for their lives ahead of the fires, creating a source of food. If the fire comes too close, the secretary birds can always fly off.

Secretary birds stoop to pick up their prey only after it has stopped moving, and when they can, they swallow it whole. Once in a while, they tear the biggest prey to pieces and store it under a bush to eat it later.

Secretary birds are most famous for their ability to kill snakes, even poisonous ones, although snakes are only a small part of their diet. Their long legs are covered with scales that protect them from snakebites. The birds can also shield themselves from bites with their wing feathers. Sometimes they run quickly after snakes to catch them. They kill snakes the same way they kill other animals, by pouncing on them and kicking them, then striking the back of the snake's head with a talon for the killing blow. When swallowed whole, snakes usually take a longer time to go down than most prey, because the birds slowly suck them in.



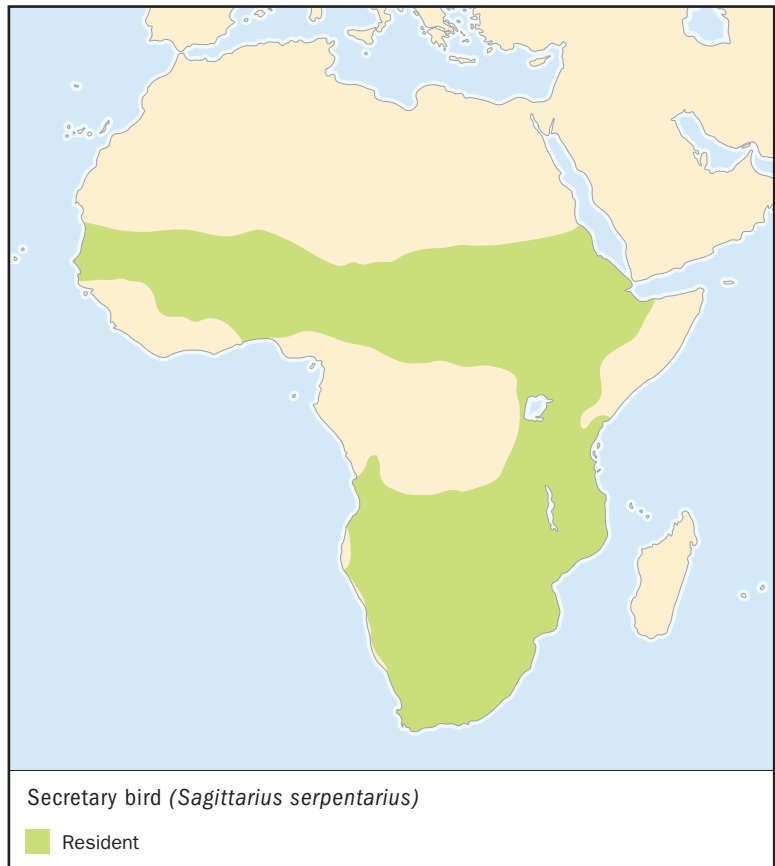
Secretary bird pairs build nests together. They stomp around on top of a tree or bush until it is flat, and then bring twigs and sticks to make a platform. They line the platform with a bed of dry grass to make a soft place for the eggs and chicks. (© Renee Lynn/Photo Researchers, Inc. Reproduced by permission.)

Because secretary birds swallow most of their prey whole, they have to get rid of the bones, fur, feathers, and scales that they cannot digest. They regurgitate (cough up) these unwanted parts in large pellets. The sausage-shaped pellets can be as long as 4 inches (10 centimeters).

BEHAVIOR AND REPRODUCTION

Secretary birds can fly well, but they usually prefer to run unless they need to fly to escape danger. When they are looking for a mate, they also do some high-flying acrobatics as part of their courtship displays. They fly high, dive down, and swoop up again. They also dash along the ground with their wings held above their backs, zig-zagging through the tall grass while making croaking noises.

Once secretary birds have found a mate, they usually stay together for life. They defend a large territory where they hunt for food. These territories are between 7.7 to 193 square miles (20 to 500 square kilometers), depending on how plentiful the food is. Male and female secretary birds usually stay within sight of each other on their territory. Sometimes they hunt alone, but then they call to each other to keep in touch. When they are done hunting in an area, they may rest or ride high in the sky on thermals (rising bubbles of warm air). They soar on broad wings to their nest, to water, or to other hunting areas. If they discover other secretary birds in their territory, they



chase and kick the other birds, making loud, croaking noises. At sunset, they usually return to their roost site. Unlike most birds, secretary birds sleep in their nests year round, not just when they raise their young. The nest is big enough for both of them to lie down in at night, and they may use the same nest and add to it year after year.

Before secretary birds build a nest, the pair finds a tree or bush with a flat top. They prefer acacia (uh-KAY-shah) trees for their nest. They stomp around on top of the tree or bush until it is flat. Then they bring twigs and sticks to make a platform as big as 6.6 feet (2 meters) in diameter. They line it with a bed of dry grass to make a soft place for the eggs and chicks. When the time is right to raise a family, the female lays between one and three eggs. The parents take turns sitting on the eggs, which hatch in forty-two to forty-six days. At first, the parents dribble partially digested food and some water into their

chicks' beaks, and then tear up the food that they feed the chicks. Soon, the chicks can handle larger prey because they have big heads for their size. At just a few weeks of age, they can open their mouths so wide that they can gulp down snakes and other prey whole. The legs of young secretary birds grow so fast that the scales keep popping off and being replaced by new scales. They are not able to stand until they are ready to fly, which can be anywhere from 65 to 106 days. Their rate of growth depends on how much food their parents are able to catch for them.

Secretary birds usually breed during the summer rains, because plenty of food is available. They can nest at any time of the year, but it is also dependent on food availability. In fact, they may raise three sets of chicks in one year and none in the next, depending on the supply of prey. Pairs of secretary birds will move away from their territories and find a new place to live if food continues to be scarce.

SECRETARY BIRDS AND PEOPLE

Scientists study the pellets of secretary birds. The bones and feathers in the pellets give them an easy way to find out what the birds have been eating. The birds are valuable to farmers because they eat insects and rodents that might otherwise eat grain. Bird watchers in Africa enjoy seeing these long-legged raptors that are famous for killing snakes.

CONSERVATION STATUS

Secretary birds are not threatened, and they are protected by laws in most African countries, although some people hunt them illegally.

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family CHAPTER

FALCONS AND CARACARAS

Falconidae

Class: Aves

Order: Falconiformes

Family: Falconidae

Number of species: 62 species

PHYSICAL CHARACTERISTICS

The birds in the falcon family are small to medium raptors (birds of prey). They include peregrines (PER-uh-grunz) , falconets, gyrfalcons (JERR-fal-kunz), merlins, kestrels, hobbies, and caracaras. They range in size from 5.5 to 25.6 inches (14 to 65 centimeters) from their beaks to the end of their tails. Like other raptors, falcons have sharp talons (claws) and hooked beaks, excellent eyesight, and pointed wings. Most falcons have feathers in shades of brown, black, white, and gray with some streaks or spots.

GEOGRAPHIC RANGE

Falcons and caracaras live on every continent except Antarctica. They also live on many ocean islands.

HABITAT

Birds in the falcon family live in almost every kind of land habitat. Many of the falcons that live in northern areas migrate to places where there is a better supply of food in winter.

DIET

Falcons are carnivores (meat-eaters), and all but the caracaras feed on live animals. Some hunt other birds in the air and others grab animals on the ground. Kestrels hover above the ground, and many other falcons swoop down from perches. Although some falcons occasionally hunt in pairs, most of them hunt alone. They eat mostly birds, mammals, reptiles, and insects, and caracaras also eat carrion, including dead fish.

phylum

class

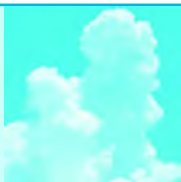
subclass

order

monotypic order

suborder

▲ family



HAWK OR FALCON?

Birds in the hawk family and in the falcon family have many things in common, including the sharp talons and hooked beaks that all raptors have. Both hawks and falcons catch prey with their feet. But hawks usually kill their prey by squeezing it with their feet, and falcons kill by biting the prey's neck or by landing hard on it. Falcons in general are smaller than hawks and their wings are pointier. Hawks build nests and falcons nest on the ground, on rocky ledges, or in nests built by other birds.

BEHAVIOR AND REPRODUCTION

Falcons are powerful predators, animals that hunt others for food, and they are most likely the fastest flying birds of prey. Most of them hunt during the day, but several species also hunt after dark.

Most species in this family breed once a year. Except for the caracaras, they do not build nests. They lay their eggs in holes in trees and rocky cliffs or in the old nests of other birds. Usually the female sits on the eggs and stays with the young while the male brings food to her and the chicks. Young falcons depend on their parents for help with catching food for a while after they can fly.

FALCONS, CARACARAS, AND PEOPLE

Falcons are admired for their flying and hunting skills, and they appear in legends and on flags and shields of many countries.

In ancient Egypt, Horus was a god who looked like a falcon. About 4,000 years ago, people began to use falcons and hawks to capture meat for themselves. This is called falconry, and some people still practice it today.

CONSERVATION STATUS

Many falcons have been harmed by habitat loss, poisons, and people who do not like birds of prey. No species in the falcon family are listed as Endangered, but four of them are considered Vulnerable, facing a high risk of extinction. Six other species are listed as Near Threatened, close to becoming threatened, and could be heading for serious trouble.



CRESTED CARACARA

Polyborus plancus

SPECIES ACCOUNTS

Physical characteristics: The crested caracara is a medium-sized raptor with a bare red face and a black cap of feathers on top of its head. It has a white neck and throat with some dark streaks. The rest of its body is covered with dark feathers, except for some white streaks under its tail and in the tail feathers. Crested caracaras range in length from 19 to 23 inches (49 to 59 centimeters) from their beaks to end of their tails, with the females being the larger than the males.

Geographic range: Crested caracaras live in most of South America, Central America, and Mexico. They are also found in the southern United States.

Crested caracaras are unusual among falcons, in that they catch most of their prey by walking around fields and through shallow wetlands, rather than swooping down on their prey from above. (© Art Wolfe/Photo Researchers, Inc. Reproduced by permission.)



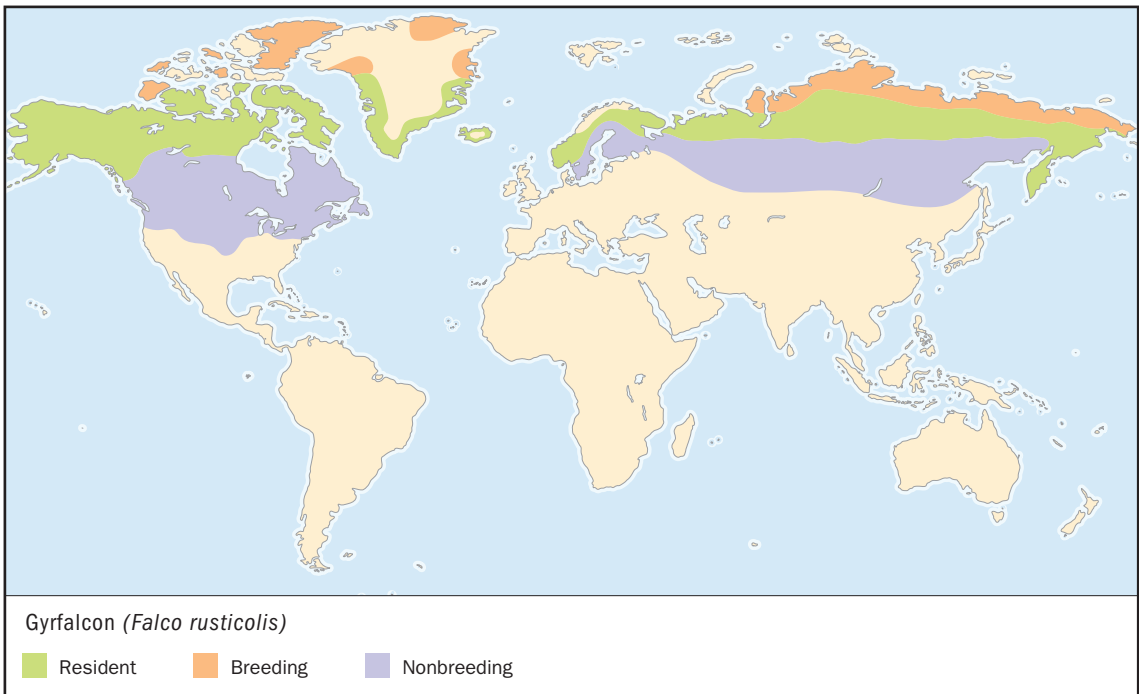
Habitat: Crested caracaras prefer open areas where they can see the animals they are hunting. They live in grasslands, deserts, farmlands, river edges, wetlands, and the grassy foothills of mountains. They like to have a few scattered trees available that can be used for roosting at night and for nesting.

Diet: Caracaras are unusual among falcons. They catch most of their prey by walking around fields and through shallow wetlands. But sometimes they watch for prey from fence posts and trees and look for dead animals along roads. They eat mostly grasshoppers and beetles, but they also eat other animals, eggs, fruit, and seeds.

Behavior and reproduction: They gather in groups at carcasses and in roosting trees at night. Pairs breed by themselves, and they build large stick nests in trees, on cactuses, or on the ground. The young stay with their parents for as long as three months after they can fly.

Crested caracaras and people: The crested caracara is the national bird of Mexico. Caracaras are clever, and they sometimes annoy campers by stealing their food.

Conservation status: Crested caracaras are not immediately threatened, but some sheep farmers kill them because they are afraid the birds will kill their lambs. ■



GYRFALCON

Falco rusticolis

Physical characteristics: The gyrfalcon (JERR-fal-kun) is the largest bird in the falcon family. Males weigh only about 65 percent as much as their mates. The birds' length varies from 18.9 to 25.2 inches (41 to 64 centimeters) from their beaks to the tip of their tails. Some gyrfalcons are almost pure white, others are gray with streaks, and still others are mostly dark brown.

Geographic range: Gyrfalcons breed around the Arctic circle in Iceland, Greenland, North America, Europe, and Asia, and some spend the winters farther south. They live the farthest north of all the raptors that hunt during the day.

Habitat: Gyrfalcons nest in the Arctic on the tundra (the cold, windy, dry region where trees cannot grow). They range from northern sea-coasts to about 4,600 feet (1,400 meters) up mountainsides and along rivers. In winter, the birds that bred the farthest north fly south to



Gyrfalcons nest in the Arctic tundra, and each pair of birds breeds on its own. (© Jim Zipp/Photo Researchers, Inc. Reproduced by permission.)

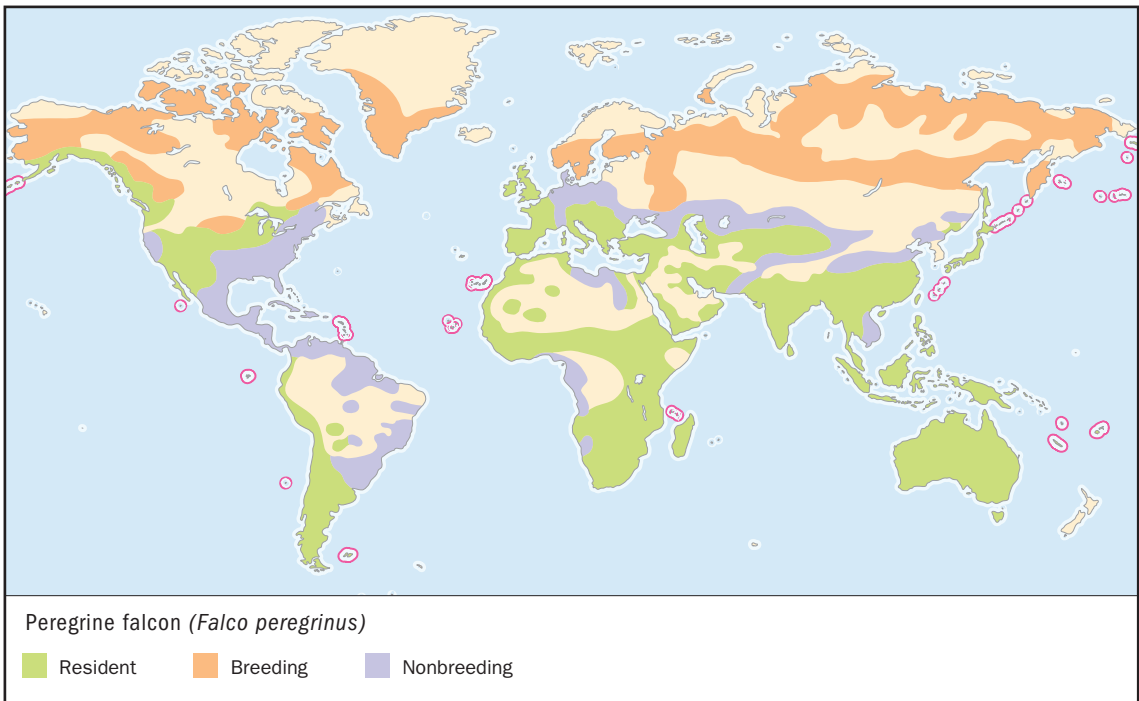
warmer grasslands, farmlands, seacoasts, and river valleys where prey is plentiful.

Diet: Birds (especially ptarmigans [TAR-mih-gunz] and grouse) and mammals (ground squirrels and lemmings) make up most of the gyrfalcons' diet. They fly low and fast to surprise their prey, and they grab the prey with their feet. The gyrfalcons that live on seacoasts often kill nesting seabirds and waterfowl.

Behavior and reproduction: Gyrfalcon pairs breed by themselves. They lay their eggs on cliff ledges or in nests built by raves, eagles, and other birds. The number of eggs laid is usually three or four, but they may lay as many as seven. The female stays with the eggs and chicks while the male brings food. But by the time the chicks are ten days old, she has to help feed them. The young birds can fly at about seven weeks.

Gyrfalcons and people: Falconers (people who train birds to hunt) often use gyrfalcons. The birds are raised in captivity now, so falconers do not have to take them from the wild.

Conservation status: Gyrfalcons are not listed as threatened. ■



PEREGRINE FALCON

Falco peregrinus

Physical characteristics: A peregrine falcon's body is designed for speed, and it is the fastest, most skillful bird of prey on Earth. It also has remarkable eyesight and hearing. The birds are between 13.4 and 19.7 inches (34 and 50 centimeters) long from their beaks to the end of their tails. The female usually weighs about twice as much as her mate. Peregrines have dark feathers on their upper parts and lighter-colored feathers below, with streaks on their under parts.

Geographic range: Peregrine falcons most likely breed in more places in the world than any other bird. They are found on all continents except the Antarctic and on many ocean islands.

Habitat: Peregrines can live almost anywhere, from the hot tropical lands to the cold coasts of the North, and from sea level to 13,000-foot (4,000-meter) mountains. They live on islands and rocky cliffs,



in deserts and forests, and on the treeless tundra. They also live among skyscrapers in large cities.

Diet: Peregrine falcons are famous for the way they catch birds in mid air. A peregrine flies high until it sees a bird flying below. Instantly, it folds its pointed wings and dives steeply down, hitting and killing the bird at more than 100 miles (160 kilometers) per hour. Then the peregrine either catches the dead bird, or it dives past the bird and picks it up on the ground. Peregrines occasionally hunt on the ground and eat mammals, reptiles, insects, and fish.

Behavior and reproduction: They usually build their nests on cliff ledges or in caves. They also nest on window ledges and bridges. Peregrines lay between two and four eggs, and the chicks are able to fly when they are just five or six weeks old.

Peregrine falcons and people: People working in skyscrapers enjoy watching the wild peregrines that now nest in big cities.

The peregrine falcon is the fastest bird of prey on Earth, and has remarkable eyesight and hearing. (© Tim Davis/Photo Researchers, Inc. Reproduced by permission.)

The birds are also trained by falconers to kill animals and leave them for their owners.

Conservation status: Peregrine falcons are not listed as Endangered by the World Conservation Union (IUCN), but they were put on the list of Endangered Species of the United States in 1970 when insect poisons got into their food. They are making a good comeback with the help of scientists and conservationists, and in 1999 they were removed from the list. ■

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Species List by Biome

CONIFEROUS FOREST

African broadbill
African pitta
American cliff swallow
American goldfinch
American robin
Anna's hummingbird
Barn swallow
Barred eagle-owl
Belted kingfisher
Black-and-red broadbill
Black-and-white warbler
Black-capped chickadee
Black-capped vireo
Black-crowned barwing
Blue-gray gnatcatcher
Bornean bristlehead
Brown creeper
Brown kiwi
Cedar waxwing
Chaffinch
Chimney swift
Crag martin
Cuban tody
Dollarbird
Dunnock
Dusky woodswallow
Eastern bluebird
Eastern screech-owl
Emu

Fan-tailed berrypecker
Fiery minivet
Fire-breasted flowerpecker
Gray butcherbird
Gray nightjar
Gray parrot
Gray potoo
Green magpie
House sparrow
House wren
Ivory-billed woodpecker
Japanese white-eye
Kirtland's warbler
Kokako
Laughing kookaburra
Little slaty flycatcher
Malaysian honeyguide
Northern bobwhite quail
Northern wryneck
Nuthatch
Oilbird
Orange-breasted trogon
Osprey
Palmchat
Peregrine falcon
Red crossbill
Red-breasted nuthatch
Red-cockaded woodpecker
Resplendent quetzal
Rifleman

Rose-throated becard
Rufous treecreeper
Rufous-browed peppershrike
Rufous-capped nunlet
Rufous-tailed jacamar
Satyr tragopan
Scarlet macaw
Sparkling violet-ear
Spotted nutcracker
Striated pardalote
Whip-poor-will
White-necked puffbird
White-throated fantail
Winter wren
Wrentit
Yellow-bellied sapsucker
Yellow-breasted chat

CONTINENTAL MARGIN

Blue-footed booby
Brown pelican
Great cormorant
Northern gannet

DECIDUOUS FOREST

African broadbill
African pitta
American cliff swallow
American goldfinch

American robin
 Anna's hummingbird
 Arctic warbler
 Asian fairy-bluebird
 Australian magpie-lark
 Baltimore oriole
 Bar-breasted mousebird
 Barn owl
 Barn swallow
 Baywing
 Black bulbul
 Black guan
 Black-and-white warbler
 Black-capped chickadee
 Black-capped vireo
 Blue jay
 Blue-crowned motmot
 Blue-gray gnatcatcher
 Brown creeper
 Brown kiwi
 Bushtit
 Cedar waxwing
 Chaffinch
 Chimney swift
 Coppersmith barbet
 Crag martin
 Crested tree swift
 Cuban tody
 Dollarbird
 Dunnock
 Dusky woodswallow
 Eastern bluebird
 Eastern screech-owl
 Emu
 Eurasian golden oriole
 European bee-eater
 European roller
 Fire-breasted flowerpecker
 Gray catbird
 Gray nightjar
 Gray-crowned babbler
 Great tit
 House sparrow
 House wren
 Ivory-billed woodpecker
 Jacky winter

Japanese white-eye
 Leaf-love
 Northern wryneck
 Nuthatch
 Orange-breasted trogon
 Osprey
 Painted buttonquail
 Peregrine falcon
 Peruvian plantcutter
 Plain chachalaca
 Red-breasted nuthatch
 Red-cockaded woodpecker
 Rifleman
 Rose-ringed parakeet
 Rufous scrub-bird
 Rufous vanga
 Rufous-capped nunlet
 Rufous-tailed jacamar
 Satyr tragopan
 Scarlet macaw
 Southern scrub robin
 Spotted flycatcher
 Striated pardalote
 Tawny frogmouth
 Toucan barbet
 Whip-poor-will
 White-breasted mesite
 White-helmet shrike
 White-necked puffbird
 Wild turkey
 Willie wagtail
 Willow ptarmigan
 Winter wren
 Wood duck
 Yellow-bellied sapsucker
 Yellow-breasted chat
 Yellow-fronted tinkerbird
 Yellowhead
 Yellow-rumped thornbill

DESERT

American cliff swallow
 American mourning dove
 Barn swallow
 Cactus wren

California condor
 Collared pratincole
 Crab plover
 Crested caracara
 Crimson chat
 Egyptian vulture
 Emu
 Gray catbird
 Gray hypocolius
 Greater hoopoe-lark
 Greater roadrunner
 Harris's hawk
 House sparrow
 Malleefowl
 Namaqua sandgrouse
 Northern lapwing
 Ostrich
 Pallas's sandgrouse
 Peregrine falcon
 Peruvian plantcutter
 Rock pigeon
 Snow finch
 Splendid fairy-wren
 Striated grasswren
 Verdin
 Western scrub-jay
 Willie wagtail

GRASSLAND

African broadbill
 African palm swift
 African paradise-flycatcher
 American cliff swallow
 American mourning dove
 American robin
 Anna's hummingbird
 Arctic skua
 Australasian lark
 Australian magpie-lark
 Australian pratincole
 Bar-breasted mousebird
 Barn owl
 Barn swallow
 Baya weaver
 Baywing

Black rail
Black-capped chickadee
Black-capped vireo
Black-crowned barwing
Black-faced sheathbill
Blue bustard
Blue jay
Blue-black grassquit
California condor
Cape sugarbird
Cattle egret
Cedar waxwing
Collared pratincole
Common cuckoo
Common myna
Common waxbill
Corncrake
Crag martin
Crested caracara
Crimson chat
Dollarbird
Eastern phoebe
Eclectus parrot
Egyptian vulture
Emu
Eurasian bittern
European bee-eater
European roller
European starling
European white stork
Fan-tailed berrypecker
Golden-winged sunbird
Gray go-away-bird
Gray hypocolius
Gray potoo
Gray woodpecker
Gray-crowned crane
Great blue heron
Great bustard
Great kiskadee
Green woodhoopoe
Gyr Falcon
Hammerhead
Harris's hawk
Helmeted guineafowl
Hoopoe

Horned lark
House sparrow
Jacky winter
Killdeer
King vulture
Laysan finch
Lesser rhea
Loggerhead shrike
Long-billed curlew
Malleefowl
Northern bobwhite quail
Northern lapwing
Northern raven
Northern wryneck
Ostrich
Painted buttonquail
Pallas's sandgrouse
Palmchat
Peregrine falcon
Peruvian plantcutter
Purple sunbird
Rainbow lorikeet
Red-billed oxpecker
Red-legged seriema
Red-winged blackbird
Rock pigeon
Roseate spoonbill
Rose-ringed parakeet
Rosy-breasted longclaw
Rufous-capped nunlet
Sacred ibis
Sandhill crane
Savanna sparrow
Secretary bird
Shoebill
Small buttonquail
Snowy owl
Song sparrow
Southern ground-hornbill
Southern red bishop
Southern scrub robin
Spotted munia
Sprague's pipit
Stonechat
Tawny frogmouth
Village weaver

White-helmet shrike
White-necked puffbird
Wild turkey
Wrentit
Yellow-fronted tinkerbird
Yellow-rumped thornbill
Zebra finch

LAKE AND POND

African jacana
American anhinga
American cliff swallow
American white pelican
Australian magpie-lark
Barn swallow
Baya weaver
Belted kingfisher
Black tern
Black-and-red broadbill
Black-capped donacobius
Canada goose
Chaffinch
Common iora
Common loon
Crag martin
Eurasian bittern
Gray wagtail
Great blue heron
Great cormorant
Great crested grebe
Greater flamingo
Greater thornbird
Hammerhead
Hoatzin
Mallard
Mute swan
Northern wryneck
Osprey
Peregrine falcon
Pheasant-tailed jacana
Red-throated loon
Roseate spoonbill
Rosy-breasted longclaw
Rufous hornero
Sacred ibis

Shoebill
 Song sparrow
 Sunbittern
 Sungrebe
 Village weaver
 Western grebe
 Wood duck
 Yellow-breasted chat
 Zebra finch

OCEAN

Arctic skua
 Blue-footed booby
 Chatham mollymawk
 Common diving-petrel
 Common iora
 Common loon
 Common murre
 Emperor penguin
 Great auk
 King eider
 Laysan albatross
 Laysan finch
 Macaroni penguin
 Magellanic penguin
 Magnificent frigatebird
 Manx shearwater
 Northern fulmar
 Northern gannet
 Puffin
 Red-throated loon
 White-tailed tropicbird
 Wilson's storm-petrel

RAINFOREST

African paradise-flycatcher
 African pitta
 Albert's lyrebird
 Amazonian umbrellabird
 American cliff swallow
 Apapane
 Arctic warbler
 Asian fairy-bluebird
 Australasian figbird
 Baltimore oriole

Barn owl
 Barn swallow
 Barred antshrike
 Bishop's oo
 Black-naped monarch
 Blue-crowned motmot
 Bornean bristlehead
 Buff-spotted flufftail
 Cape batis
 Common bulbul
 Common cuckoo
 Common iora
 Common sunbird-asity
 Common trumpeter
 Coppery-chested jacamar
 Crag martin
 Cuban tody
 Dodo
 Eclectus parrot
 Fan-tailed berrypecker
 Feline owlet-nightjar
 Fiery minivet
 Golden whistler
 Golden-winged sunbird
 Gray antbird
 Gray nightjar
 Gray potoo
 Gray-breasted mountain-toucan
 Gray-necked picathartes
 Great blue turaco
 Greater racket-tailed drongo
 Greater thornbird
 Guianan cock-of-the-rock
 Hairy hermit
 Helmeted hornbill
 Highland tinamou
 Hooded pitta
 House sparrow
 Kagu
 King bird of paradise
 King vulture
 Kokako
 Little slaty flycatcher
 Long-tailed manakin
 Luzon bleeding heart

Lyre-tailed honeyguide
 Malaysian honeyguide
 Maleo
 Mauritius cuckoo-shrike
 Osprey
 Peregrine falcon
 Purple sunbird
 Purple-bearded bee-eater
 Rainbow lorikeet
 Red-billed scythebill
 Ribbon-tailed astrapia
 Roseate spoonbill
 Rose-ringed parakeet
 Ruby-cheeked sunbird
 Rufous scrub-bird
 Rufous vanga
 Rufous-collared kingfisher
 Rusty-belted tapaculo
 Satin bowerbird
 Sharpbill
 Southern cassowary
 Southern logrunner
 Spangled cotinga
 Spotted quail-thrush
 Square-tailed drongo
 Striated pardalote
 Stripe-headed rhabdornis
 Sulawesi red-knobbed hornbill
 Sunbittern
 Toco toucan
 Toucan barbet
 Variable pitohui
 Victoria's riflebird
 Wattled curassow
 White-breasted mesite
 Willie wagtail
 Wire-tailed manakin

RIVER AND STREAM

African broadbill
 African pitta
 American anhinga
 American cliff swallow
 American dipper
 American white pelican

Australian magpie-lark
Baltimore oriole
Barn swallow
Baya weaver
Black-and-red broadbill
Black-capped donacobius
Canada goose
Cedar waxwing
Chaffinch
Common loon
Crag martin
Crested caracara
Cuban tody
Dusky woodswallow
Eurasian dipper
European bee-eater
European roller
Gray catbird
Gray hypocolius
Gray wagtail
Gray woodpecker
Great blue heron
Great cormorant
Great crested grebe
Green woodhoopoe
Gyr Falcon
Hoatzin
Mute swan
Northern wryneck
Peregrine falcon
Red-breasted nuthatch
Red-throated loon
Roseate spoonbill
Rosy-breasted longclaw
Rufous-capped nunlet
Rufous hornero
Rufous-tailed jacamar
Sacred ibis
Shoebill
Snow bunting
Song sparrow
Southern red bishop
Spotted bowerbird
Striped honeyeater
Sunbittern
Sungrebe

Village weaver
Wood duck
Yellow-breasted chat
Yellow-fronted tinkerbird

SEASHORE

American cliff swallow
American white pelican
Arctic warbler
Australian magpie-lark
Barn swallow
Beach thick-knee
Belted kingfisher
Black tern
Black-faced sheathbill
Blue-footed booby
Brown pelican
Cactus wren
California condor
Collared pratincole
Common iora
Common murre
Crab plover
Crag martin
Cuban tody
Fiery minivet
Golden whistler
Gray wagtail
Great auk
Great blue heron
Great cormorant
Greater flamingo
Gyr Falcon
Hood mockingbird
Horned lark
Magnificent frigatebird
Northern gannet
Osprey
Peregrine falcon
Puffin
Roseate spoonbill
Ruddy turnstone
Sacred ibis
Saunders's gull
Snow bunting

Song sparrow
Splendid fairy-wren
Stonechat
Variable oystercatcher
Victoria's riflebird
White-tailed tropicbird

TUNDRA

American robin
Arctic skua
Arctic warbler
Canada goose
Common loon
Gyr Falcon
Horned lark
Northern raven
Peregrine falcon
Red-throated loon
Ruddy turnstone
Savanna sparrow
Snow bunting
Snowy owl
Willow ptarmigan

WETLAND

African jacana
African snipe
American anhinga
American avocet
American cliff swallow
American white pelican
Australasian lark
Australian magpie-lark
Baltimore oriole
Barn swallow
Black rail
Black tern
Black-faced sheathbill
Black-winged stilt
Canada goose
Cattle egret
Common bulbul
Common iora
Crag martin
Crested caracara

Eurasian bittern
European white stork
Gray wagtail
Gray-crowned crane
Great blue heron
Great cormorant
Greater flamingo
Greater painted snipe
Hairy hermit
Hammerhead
Harris's hawk
Horned screamer
House sparrow
Killdeer

King eider
Leaf-love
Limpkin
Long-billed curlew
Mallard
Mute swan
Northern lapwing
Osprey
Peregrine falcon
Pheasant-tailed jacana
Red-crowned crane
Red-winged blackbird
Roseate spoonbill
Rosy-breasted longclaw

Ruddy turnstone
Rufous-bellied seedsnipe
Sacred ibis
Sandhill crane
Saunders's gull
Shoebill
Sunbittern
Village weaver
Wood duck
Wood stork
Yellow-breasted chat
Zebra finch
Zitting cisticola

Species List by Geographic Range



AFGHANISTAN

Barn swallow
Chaffinch
Common myna
Crag martin
Egyptian vulture
Eurasian golden oriole
European bee-eater
European roller
European starling
Gray hypocolius
Great cormorant
Great crested grebe
Great tit
Greater hoopoe-lark
Hoopoe
House sparrow
Mute swan
Northern lapwing
Northern raven
Peregrine falcon
Rock pigeon
Snow finch
Spotted flycatcher
Spotted nutcracker
Winter wren

ALBANIA

Barn swallow
Chaffinch

Common cuckoo
Corncrake
Crag martin
Dunnock
Egyptian vulture
Eurasian dipper
Eurasian golden oriole
European bee-eater
European roller
European starling
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Hoopoe
Horned lark
House sparrow
Mallard
Northern gannet
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Snow bunting
Spotted flycatcher
Stonechat
Winter wren

Zitting cisticola

ALGERIA

Barn swallow
Black-winged stilt
Chaffinch
Common bulbul
Common cuckoo
Common murre
Corncrake
Crag martin
Dunnock
Egyptian vulture
Eurasian bittern
Eurasian golden oriole
European bee-eater
European roller
European starling
Gray wagtail
Great cormorant
Great crested grebe
Greater hoopoe-lark
Hoopoe
House sparrow
Mallard
Northern gannet
Northern lapwing
Northern raven
Northern wryneck
Peregrine falcon

Rock pigeon
Ruddy turnstone
Small buttonquail
Spotted flycatcher
Stonechat
Winter wren
Zitting cisticola

ANDORRA

Great cormorant
Peregrine falcon

ANGOLA

African jacana
African palm swift
African paradise-flycatcher
African snipe
Bar-breasted mousebird
Barn swallow
Black tern
Black-winged stilt
Buff-spotted flufftail
Cattle egret
Collared pratincole
Common bulbul
Common cuckoo
Common waxbill
Eurasian golden oriole
European bee-eater
European roller
European white stork
Gray go-away-bird
Great cormorant
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
House sparrow
Lyre-tailed honeyguide
Namaqua sandgrouse
Osprey
Ostrich
Peregrine falcon
Red-billed oxpecker

Rock pigeon
Rosy-breasted longclaw
Ruddy turnstone
Sacred ibis
Secretary bird
Small buttonquail
Southern ground-hornbill
Southern red bishop
Spotted flycatcher
Square-tailed drongo
Stonechat
Village weaver
White-helmet shrike
Wilson's storm-petrel
Yellow-fronted tinkerbird
Zitting cisticola

ANTARCTICA

Black-faced sheathbill
Emperor penguin
Macaroni penguin
Wilson's storm-petrel

ARGENTINA

American anhinga
American cliff swallow
Arctic skua
Barn owl
Barn swallow
Barred antshrike
Baywing
Black rail
Black-capped donacobius
Black-winged stilt
Blue-black grassquit
Cattle egret
Common diving-petrel
Crested caracara
Emperor penguin
Gray potoo
Great kiskadee
Greater thornbird
Harris's hawk
House sparrow
King vulture
Lesser rhea

Limpkin
Macaroni penguin
Magellanic penguin
Manx shearwater
Peregrine falcon
Red-billed scythebill
Red-legged seriema
Rock pigeon
Roseate spoonbill
Ruddy turnstone
Rufous hornero
Rufous-bellied seedsnipe
Rufous-browed peppershrike
Rufous-tailed jacamar
Sharpbill
Sparkling violet-ear
Sungrebe
Toco toucan
Wilson's storm-petrel
Wood stork

ARMENIA

Barn swallow
Chaffinch
Common cuckoo
Dunnock
Egyptian vulture
Eurasian dipper
Eurasian golden oriole
European bee-eater
European roller
European starling
Great cormorant
Great crested grebe
Great tit
Hoopoe
Horned lark
House sparrow
Northern lapwing
Northern raven
Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Snow finch
Stonechat

Winter wren

ASCENSION

White-tailed tropicbird

AUSTRALIA

Albert's lyrebird
Arctic skua
Australasian figbird
Australasian lark
Australian magpie-lark
Australian pratincole
Beach thick-knee
Black-winged stilt
Cattle egret
Common diving-petrel
Crimson chat
Dollarbird
Dusky woodswallow
Eclectus parrot
Emu
European starling
Golden whistler
Gray butcherbird
Gray-crowned babbler
Great cormorant
Great crested grebe
Greater painted snipe
House sparrow
Jacky winter
Laughing kookaburra
Mallard
Malleefowl
Mute swan
Osprey
Painted buttonquail
Peregrine falcon
Rainbow lorikeet
Rock pigeon
Ruddy turnstone
Rufous scrub-bird
Rufous treecreeper
Satin bowerbird
Southern cassowary
Southern logrunner
Southern scrub robin

Splendid fairy-wren
Spotted bowerbird
Spotted quail-thrush
Striated grasswren
Striated pardalote
Striped honeyeater
Tawny frogmouth
Victoria's riflebird
Willie wagtail
Wilson's storm-petrel
Yellow-rumped thornbill
Zebra finch
Zitting cisticola

AUSTRIA

Barn swallow
Black tern
Chaffinch
Collared pratincole
Common cuckoo
Corncrake
Crag martin
Dunnock
Eurasian golden oriole
European bee-eater
European roller
European starling
European white stork
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Mute swan
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Snow bunting
Snow finch
Spotted flycatcher

Spotted nutcracker
Stonechat
Winter wren

AZERBAIJAN

Barn swallow
Cattle egret
Chaffinch
Common cuckoo
Dunnock
Egyptian vulture
Eurasian dipper
Eurasian golden oriole
European bee-eater
European roller
European starling
European white stork
Great cormorant
Great crested grebe
Great tit
Hoopoe
Horned lark
House sparrow
Mallard
Northern lapwing
Northern raven
Nuthatch
Peregrine falcon
Red crossbill
Red-throated loon
Rock pigeon
Snow finch
Spotted flycatcher
Winter wren

BAHAMAS

American avocet
American mourning dove
American robin
Barn owl
Belted kingfisher
Black-and-white warbler
Black-winged stilt
Blue-gray gnatcatcher
Brown pelican
Cattle egret

Crested caracara
European starling
Gray catbird
House sparrow
Killdeer
Kirtland's warbler
Osprey
Peregrine falcon
Rock pigeon
Ruddy turnstone
White-tailed tropicbird
Wood stork
Yellow-bellied sapsucker

BANGLADESH

Barn swallow
Baya weaver
Black bulbul
Black-naped monarch
Black-winged stilt
Cattle egret
Common cuckoo
Common iora
Common myna
Coppersmith barbet
Crested tree swift
Dollarbird
Eurasian bittern
European white stork
Gray nightjar
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Greater painted snipe
Greater racket-tailed drongo
Green magpie
Hooded pitta
Hoopoe
House sparrow
Mallard
Northern wryneck
Osprey
Peregrine falcon
Pheasant-tailed jacana
Purple sunbird

Rock pigeon
Rose-ringed parakeet
Ruby-cheeked sunbird
Ruddy turnstone
Small buttonquail
Spotted munia
Stonechat
White-throated fantail
Zitting cisticola

BELARUS

Barn swallow
Black tern
Chaffinch
Common cuckoo
Corncrake
Dunnock
Eurasian bittern
Eurasian golden oriole
European roller
European starling
European white stork
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Spotted flycatcher
Spotted nutcracker
Winter wren

BELGIUM

Barn swallow
Black tern
Chaffinch
Common cuckoo
Common murre
Corncrake

Dunnock
Eurasian golden oriole
European roller
European starling
European white stork
Gray wagtail
Great auk
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Manx shearwater
Mute swan
Northern fulmar
Northern gannet
Northern lapwing
Northern wryneck
Nuthatch
Peregrine falcon
Puffin
Red-throated loon
Rock pigeon
Ruddy turnstone
Spotted flycatcher
Stonechat
Winter wren

BELIZE

American anhinga
American mourning dove
Baltimore oriole
Barn owl
Barred antshrike
Belted kingfisher
Black rail
Black-and-white warbler
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Blue-gray gnatcatcher
Brown pelican
Cattle egret
Cedar waxwing
Crested caracara

Gray catbird
 Great blue heron
 Great kiskadee
 Harris's hawk
 House sparrow
 Killdeer
 King vulture
 Limpkin
 Magnificent frigatebird
 Northern raven
 Osprey
 Peregrine falcon
 Plain chachalaca
 Rock pigeon
 Rose-throated becard
 Ruddy turnstone
 Rufous-browed peppershrike
 Rufous-tailed jacamar
 Savanna sparrow
 Scarlet macaw
 Sungrebe
 Whip-poor-will
 White-necked puffbird
 Wood stork
 Yellow-bellied sapsucker
 Yellow-breasted chat

BENIN

African jacana
 African palm swift
 African paradise-flycatcher
 Barn swallow
 Black tern
 Black-winged stilt
 Cattle egret
 Collared pratincole
 Common bulbul
 Eurasian bittern
 European bee-eater
 European roller
 Gray parrot
 Gray woodpecker
 Great blue turaco
 Greater painted snipe
 Green woodhoopoe
 Hammerhead

Helmeted guineafowl
 Hoopoe
 Leaf-love
 Northern wryneck
 Osprey
 Peregrine falcon
 Rose-ringed parakeet
 Ruddy turnstone
 Sacred ibis
 Secretary bird
 Small buttonquail
 Spotted flycatcher
 Square-tailed drongo
 Village weaver
 White-helmet shrike
 Wilson's storm-petrel
 Yellow-fronted tinkerbird
 Zitting cisticola

BERMUDA

European starling
 Gray catbird
 House sparrow
 White-tailed tropicbird

BHUTAN

Asian fairy-bluebird
 Barn swallow
 Black-naped monarch
 Cattle egret
 Common cuckoo
 Coppersmith barbet
 Crested tree swift
 Dollarbird
 Eurasian bittern
 European white stork
 Fire-breasted flowerpecker
 Gray nightjar
 Great cormorant
 Great crested grebe
 Greater painted snipe
 Hooded pitta
 Hoopoe
 House sparrow
 Northern wryneck
 Osprey

Pheasant-tailed jacana
 Purple sunbird
 Rock pigeon
 Rose-ringed parakeet
 Satyr tragopan
 Small buttonquail
 Snow finch
 Spotted munia
 Spotted nutcracker
 Stonechat
 White-throated fantail
 Zitting cisticola

BOLIVIA

Amazonian umbrellabird
 American anhinga
 Barn owl
 Barn swallow
 Barred antshrike
 Baywing
 Black-capped donacobius
 Black-winged stilt
 Blue-black grassquit
 Blue-crowned motmot
 Cattle egret
 Chimney swift
 Crested caracara
 Gray antbird
 Gray potoo
 Great kiskadee
 Greater thornbird
 Hairy hermit
 Harris's hawk
 Horned screamer
 House sparrow
 Killdeer
 King vulture
 Lesser rhea
 Limpkin
 Oilbird
 Peregrine falcon
 Red-billed scythebill
 Red-legged seriema
 Roseate spoonbill
 Rufous hornero
 Rufous-bellied seedsnipe

Rufous-browed peppershrike
 Rufous-capped nunlet
 Rufous-tailed jacamar
 Scarlet macaw
 Sharpbill
 Spangled cotinga
 Sparkling violet-ear
 Sunbittern
 Sungrebe
 Toco toucan
 Wattled curassow
 White-necked puffbird
 Wood stork

BOSNIA AND HERZEGOVINA

Barn swallow
 Chaffinch
 Common cuckoo
 Corncrake
 Dunnock
 Eurasian dipper
 Eurasian golden oriole
 European bee-eater
 European roller
 European starling
 European white stork
 Gray wagtail
 Great cormorant
 Great crested grebe
 Great tit
 Hoopoe
 House sparrow
 Mallard
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Peregrine falcon
 Red crossbill
 Rock pigeon
 Snow bunting
 Snow finch
 Spotted flycatcher
 Stonechat
 Winter wren

Zitting cisticola

BOTSWANA

African jacana
 African palm swift
 African paradise-flycatcher
 African snipe
 Bar-breasted mousebird
 Barn swallow
 Black-winged stilt
 Cattle egret
 Common bulbul
 Common waxbill
 Corncrake
 Eurasian golden oriole
 European roller
 European white stork
 Gray go-away-bird
 Great cormorant
 Greater painted snipe
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 House sparrow
 Namaqua sandgrouse
 Osprey
 Ostrich
 Peregrine falcon
 Red-billed oxpecker
 Rock pigeon
 Rosy-breasted longclaw
 Sacred ibis
 Secretary bird
 Small buttonquail
 Southern ground-hornbill
 Southern red bishop
 Spotted flycatcher
 Stonechat
 Village weaver
 White-helmet shrike
 Yellow-fronted tinkerbird
 Zitting cisticola

BRAZIL

Amazonian umbrellabird

American anhinga
 American cliff swallow
 Barn owl
 Barn swallow
 Barred antshrike
 Baywing
 Black-capped donacobius
 Black-winged stilt
 Blue-black grassquit
 Blue-crowned motmot
 Brown pelican
 Cattle egret
 Chimney swift
 Common trumpeter
 Coppery-chested jacamar
 Crested caracara
 Gray antbird
 Gray potoo
 Great kiskadee
 Greater thornbird
 Guianan cock-of-the-rock
 Hairy hermit
 Harris's hawk
 Hoatzin
 Horned screamer
 House sparrow
 King vulture
 Limpkin
 Magellanic penguin
 Magnificent frigatebird
 Manx shearwater
 Oilbird
 Osprey
 Peregrine falcon
 Red-billed scythebill
 Red-legged seriema
 Rock pigeon
 Roseate spoonbill
 Ruddy turnstone
 Rufous hornero
 Rufous-browed peppershrike
 Rufous-capped nunlet
 Rufous-tailed jacamar
 Rusty-belted tapaculo
 Scarlet macaw

Sharpbill
Spangled cotinga
Sparkling violet-ear
Sunbittern
Sungrebe
Toco toucan
Wattled curassow
White-necked puffbird
Wilson's storm-petrel
Wire-tailed manakin
Wood stork

BULGARIA

Barn swallow
Black-winged stilt
Chaffinch
Common cuckoo
Corncrake
Dunnock
Egyptian vulture
Eurasian bittern
Eurasian golden oriole
European bee-eater
European roller
European starling
European white stork
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Mute swan
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Red-throated loon
Rock pigeon
Snow bunting
Spotted flycatcher
Stonechat
Winter wren

Zitting cisticola

BURKINA FASO

African jacana
African palm swift
Barn swallow
Black-winged stilt
Cattle egret
Collared pratincole
Common bulbul
Egyptian vulture
Eurasian bittern
European bee-eater
European roller
European white stork
Gray woodpecker
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
Northern wryneck
Osprey
Peregrine falcon
Rose-ringed parakeet
Sacred ibis
Secretary bird
Small buttonquail
Village weaver
White-helmet shrike
Yellow-fronted tinkerbird

BURUNDI

African jacana
African palm swift
African paradise-flycatcher
African pitta
African snipe
Bar-breasted mousebird
Barn swallow
Black-winged stilt
Buff-spotted flufftail
Cattle egret
Collared pratincole
Common bulbul
Common cuckoo

Common waxbill
Corncrake
Eurasian golden oriole
European bee-eater
European roller
European white stork
Gray parrot
Gray-crowned crane
Great blue turaco
Great cormorant
Great crested grebe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
Osprey
Ostrich
Peregrine falcon
Red-billed oxpecker
Sacred ibis
Small buttonquail
Southern ground-hornbill
Southern red bishop
Spotted flycatcher
Stonechat
Village weaver
Yellow-fronted tinkerbird
Zitting cisticola

CAMBODIA

Arctic warbler
Asian fairy-bluebird
Australasian lark
Barn swallow
Baya weaver
Black-naped monarch
Black-winged stilt
Cattle egret
Common cuckoo
Common iora
Common myna
Coppersmith barbet
Crested tree swift
Dollarbird
Fire-breasted flowerpecker
Gray nightjar

Gray wagtail
 Great cormorant
 Great tit
 Greater painted snipe
 Greater racket-tailed drongo
 Green magpie
 Hoopoe
 Northern wryneck
 Orange-breasted trogon
 Osprey
 Peregrine falcon
 Pheasant-tailed jacana
 Purple sunbird
 Rock pigeon
 Ruby-cheeked sunbird
 Ruddy turnstone
 Small buttonquail
 Spotted munia
 Stonechat
 White-throated fantail
 Zitting cisticola

CAMEROON

African broadbill
 African jacana
 African palm swift
 African paradise-flycatcher
 African pitta
 Bar-breasted mousebird
 Barn swallow
 Black tern
 Black-winged stilt
 Buff-spotted flufftail
 Cattle egret
 Collared pratincole
 Common bulbul
 Common waxbill
 Eurasian bittern
 Eurasian golden oriole
 European roller
 European white stork
 Gray parrot
 Gray woodpecker
 Gray-necked picathartes
 Great blue turaco
 Great cormorant

Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Leaf-love
 Lyre-tailed honeyguide
 Northern wryneck
 Osprey
 Peregrine falcon
 Rose-ringed parakeet
 Ruddy turnstone
 Sacred ibis
 Secretary bird
 Small buttonquail
 Spotted flycatcher
 Square-tailed drongo
 Stonechat
 Village weaver
 White-helmet shrike
 Wilson's storm-petrel
 Yellow-fronted tinkerbird
 Zitting cisticola

CANADA

American cliff swallow
 American dipper
 American goldfinch
 American mourning dove
 American robin
 American white pelican
 Anna's hummingbird
 Arctic skua
 Baltimore oriole
 Barn owl
 Barn swallow
 Belted kingfisher
 Black tern
 Black-and-white warbler
 Black-capped chickadee
 Blue jay
 Brown creeper
 Bushtit
 Canada goose
 Cattle egret
 Cedar waxwing
 Chimney swift

Common loon
 Common murre
 Eastern bluebird
 Eastern phoebe
 Eastern screech-owl
 European starling
 Gray catbird
 Great auk
 Great blue heron
 Great cormorant
 Gyrfalcon
 Horned lark
 House sparrow
 House wren
 Killdeer
 King eider
 Loggerhead shrike
 Long-billed curlew
 Mallard
 Manx shearwater
 Northern fulmar
 Northern gannet
 Northern raven
 Osprey
 Peregrine falcon
 Puffin
 Red crossbill
 Red-breasted nuthatch
 Red-throated loon
 Red-winged blackbird
 Rock pigeon
 Ruddy turnstone
 Sandhill crane
 Savanna sparrow
 Snow bunting
 Snowy owl
 Song sparrow
 Sprague's pipit
 Western grebe
 Whip-poor-will
 Willow ptarmigan
 Wilson's storm-petrel
 Winter wren
 Wood duck
 Yellow-bellied sapsucker
 Yellow-breasted chat

CENTRAL AFRICAN REPUBLIC

African broadbill
African jacana
African palm swift
African paradise-flycatcher
Bar-breasted mousebird
Barn swallow
Black-winged stilt
Buff-spotted flufftail
Cattle egret
Collared pratincole
Common bulbul
Common waxbill
Eurasian bittern
Eurasian golden oriole
European white stork
Gray parrot
Gray woodpecker
Great blue turaco
Great cormorant
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
Leaf-love
Lyre-tailed honeyguide
Northern wryneck
Osprey
Ostrich
Peregrine falcon
Red-billed oxpecker
Rose-ringed parakeet
Sacred ibis
Secretary bird
Shoebill
Small buttonquail
Spotted flycatcher
Square-tailed drongo
Village weaver
White-helmet shrike
Yellow-fronted tinkerbird

CHAD

African jacana
African palm swift

African paradise-flycatcher
Barn swallow
Black-winged stilt
Cattle egret
Collared pratincole
Common bulbul
Egyptian vulture
Eurasian bittern
European white stork
Gray woodpecker
Great cormorant
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
Northern wryneck
Osprey
Ostrich
Peregrine falcon
Rock pigeon
Rose-ringed parakeet
Sacred ibis
Secretary bird
Small buttonquail
Square-tailed drongo
Village weaver
White-helmet shrike
Yellow-fronted tinkerbird

CHILE

Arctic skua
Barn owl
Barn swallow
Black rail
Black-winged stilt
Blue-black grassquit
Brown pelican
Cattle egret
Chimney swift
Common diving-petrel
Crested caracara
Emperor penguin
Harris's hawk
House sparrow
Killdeer

Lesser rhea
Macaroni penguin
Magellanic penguin
Osprey
Peregrine falcon
Rock pigeon
Ruddy turnstone
Rufous-bellied seedsnipe
Sparkling violet-ear
Wilson's storm-petrel

CHINA

Arctic warbler
Asian fairy-bluebird
Barn swallow
Baya weaver
Black bulbul
Black tern
Black-naped monarch
Black-winged stilt
Cattle egret
Chaffinch
Common cuckoo
Common iora
Common murre
Common myna
Coppersmith barbet
Crag martin
Crested tree swift
Dollarbird
Eurasian bittern
Eurasian dipper
Eurasian golden oriole
European roller
European starling
Fire-breasted flowerpecker
Gray nightjar
Gray wagtail
Great bustard
Great cormorant
Great crested grebe
Great tit
Greater painted snipe
Greater racket-tailed drongo
Green magpie

Hooded pitta
 Hoopoe
 Horned lark
 House sparrow
 Japanese white-eye
 Mallard
 Mute swan
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Orange-breasted trogon
 Osprey
 Pallas's sandgrouse
 Peregrine falcon
 Pheasant-tailed jacana
 Purple sunbird
 Red crossbill
 Red-crowned crane
 Red-throated loon
 Rock pigeon
 Rose-ringed parakeet
 Ruby-cheeked sunbird
 Ruddy turnstone
 Satyr tragopan
 Saunder's gull
 Small buttonquail
 Snow bunting
 Snow finch
 Spotted flycatcher
 Spotted munia
 Spotted nutcracker
 Stonechat
 White-throated fantail
 Willow ptarmigan
 Winter wren
 Zitting cisticola

COLOMBIA

Amazonian umbrellabird
 American anhinga
 Baltimore oriole
 Barn owl
 Barn swallow
 Barred antshrike

Belted kingfisher
 Black tern
 Black-and-white warbler
 Black-capped donacobius
 Black-winged stilt
 Blue-black grassquit
 Blue-crowned motmot
 Blue-footed booby
 Brown pelican
 Cattle egret
 Common trumpeter
 Coppery-chested jacamar
 Crested caracara
 Gray antbird
 Gray potoo
 Gray-breasted mountain-toucan
 Great blue heron
 Great kiskadee
 Greater flamingo
 Guianan cock-of-the-rock
 Hairy hermit
 Harris's hawk
 Highland tinamou
 Hoatzin
 Horned lark
 Horned screamer
 House sparrow
 Killdeer
 King vulture
 Limpkin
 Magnificent frigatebird
 Oilbird
 Osprey
 Peregrine falcon
 Red-billed scythebill
 Roseate spoonbill
 Ruddy turnstone
 Rufous-browed peppershrike
 Rufous-tailed jacamar
 Rusty-belted tapaculo
 Scarlet macaw
 Spangled cotinga
 Sparkling violet-ear
 Sunbittern
 Sungrebe

Toucan barbet
 Wattled curassow
 White-necked puffbird
 Wilson's storm-petrel
 Wire-tailed manakin
 Wood stork

COMOROS

White-tailed tropicbird

CONGO

African jacana
 African palm swift
 African paradise-flycatcher
 African pitta
 Bar-breasted mousebird
 Barn swallow
 Black tern
 Black-winged stilt
 Buff-spotted flufftail
 Cattle egret
 Collared pratincole
 Common bulbul
 Common cuckoo
 Common waxbill
 Eurasian golden oriole
 Gray parrot
 Great blue turaco
 Great cormorant
 Greater painted snipe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Leaf-love
 Lyre-tailed honeyguide
 Osprey
 Peregrine falcon
 Ruddy turnstone
 Sacred ibis
 Small buttonquail
 Spotted flycatcher
 Square-tailed drongo
 Stonechat
 Village weaver
 Zitting cisticola

COSTA RICA

American anhinga
American dipper
American mourning dove
Baltimore oriole
Barn owl
Barn swallow
Barred antshrike
Belted kingfisher
Black guan
Black rail
Black tern
Black-and-white warbler
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Blue-footed booby
Brown pelican
Cattle egret
Cedar waxwing
Crested caracara
Gray catbird
Gray potoo
Great blue heron
Great kiskadee
Harris's hawk
Highland tinamou
House sparrow
Killdeer
King vulture
Limpkin
Long-tailed manakin
Magnificent frigatebird
Oilbird
Osprey
Peregrine falcon
Plain chachalaca
Resplendent quetzal
Rock pigeon
Roseate spoonbill
Rose-throated becard
Ruddy turnstone
Rufous-browed peppershrike
Rufous-tailed jacamar
Scarlet macaw
Sharpbill

Sunbittern
Sungebe
White-necked puffbird
Wood stork
Yellow-bellied sapsucker
Yellow-breasted chat

CROATIA

Barn swallow
Chaffinch
Collared pratincole
Common cuckoo
Corncrake
Dunnoek
Eurasian bittern
Eurasian dipper
Eurasian golden oriole
European bee-eater
European roller
European starling
European white stork
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Red-throated loon
Rock pigeon
Snow bunting
Snow finch
Spotted flycatcher
Stonechat
Winter wren
Zitting cisticola

CUBA

American avocet
American mourning dove

Barn owl
Belted kingfisher
Black rail
Black-and-white warbler
Black-winged stilt
Blue-gray gnatcatcher
Brown pelican
Crested caracara
Cuban tody
Gray catbird
Greater flamingo
House sparrow
Ivory-billed woodpecker
Killdeer
Limpkin
Magnificent frigatebird
Northern bobwhite quail
Osprey
Peregrine falcon
Rock pigeon
Roseate spoonbill
Ruddy turnstone
Whip-poor-will
White-tailed tropicbird
Wood duck
Wood stork
Yellow-bellied sapsucker

CYPRUS

European roller
Great cormorant
Northern gannet
Peregrine falcon
Zitting cisticola

CZECH REPUBLIC

Barn swallow
Black tern
Chaffinch
Common cuckoo
Corncrake
Dunnoek
Eurasian dipper
Eurasian golden oriole
European roller
European starling

European white stork
 Gray wagtail
 Great cormorant
 Great crested grebe
 Great tit
 Hoopoe
 House sparrow
 Mallard
 Mute swan
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Peregrine falcon
 Red crossbill
 Rock pigeon
 Snow bunting
 Spotted flycatcher
 Spotted nutcracker
 Stonechat
 Winter wren

DEMOCRATIC REPUBLIC OF THE CONGO

African broadbill
 African jacana
 African palm swift
 African paradise-flycatcher
 African pitta
 African snipe
 Barn swallow
 Black tern
 Black-winged stilt
 Buff-spotted flufftail
 Cattle egret
 Collared pratincole
 Common bulbul
 Common cuckoo
 Common waxbill
 Corncrake
 Egyptian vulture
 Eurasian bittern
 Eurasian golden oriole
 European bee-eater
 European roller

European white stork
 Golden-winged sunbird
 Gray go-away-bird
 Gray parrot
 Gray woodpecker
 Gray-crowned crane
 Great blue turaco
 Great cormorant
 Great crested grebe
 Greater painted snipe
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 House sparrow
 Leaf-love
 Lyre-tailed honeyguide
 Northern wryneck
 Osprey
 Peregrine falcon
 Red-billed oxpecker
 Ruddy turnstone
 Sacred ibis
 Secretary bird
 Shoebill
 Small buttonquail
 Southern ground-hornbill
 Southern red bishop
 Spotted flycatcher
 Square-tailed drongo
 Stonechat
 Village weaver
 White-helmet shrike
 Yellow-fronted tinkerbird
 Zitting cisticola

DENMARK

Barn swallow
 Canada goose
 Chaffinch
 Common cuckoo
 Common murre
 Corncrake
 Dunnock
 Eurasian bittern
 European roller

European starling
 Great auk
 Great cormorant
 Great crested grebe
 Great tit
 House sparrow
 Mallard
 Manx shearwater
 Mute swan
 Northern fulmar
 Northern gannet
 Northern lapwing
 Northern wryneck
 Nuthatch
 Peregrine falcon
 Puffin
 Red crossbill
 Red-throated loon
 Rock pigeon
 Snow bunting
 Spotted flycatcher
 Stonechat
 Winter wren

DJIBOUTI

African paradise-flycatcher
 African snipe
 Bar-breasted mousebird
 Cattle egret
 Collared pratincole
 Common bulbul
 Corncrake
 Crab plovers
 Egyptian vulture
 European roller
 Great cormorant
 Greater flamingo
 Greater hoopoe-lark
 Green woodhoopoe
 Hammerhead
 Hoopoe
 Osprey
 Ostrich
 Peregrine falcon
 Red-billed oxpecker
 Ruddy turnstone

Sacred ibis
Secretary bird
Small buttonquail
Stonechat
Wilson's storm-petrel

DOMINICAN REPUBLIC

American mourning dove
Barn owl
Belted kingfisher
Black rail
Black-and-white warbler
Black-winged stilt
Brown pelican
Cattle egret
Crested caracara
Greater flamingo
House sparrow
Killdeer
Limpkin
Magnificent frigatebird
Osprey
Palmchat
Peregrine falcon
Rock pigeon
Roseate spoonbill
Ruddy turnstone
White-tailed tropicbird
Wilson's storm-petrel
Wood stork
Yellow-bellied sapsucker

ECUADOR

Amazonian umbrellabird
American anhinga
Barn owl
Barn swallow
Barred antshrike
Black tern
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Blue-footed booby
Brown pelican
Cattle egret
Chimney swift

Common trumpeter
Coppery-chested jacamar
Crested caracara
Gray antbird
Gray potoo
Gray-breasted mountain-toucan
Great kiskadee
Greater flamingo
Harris's hawk
Highland tinamou
Hood mockingbird
Horned screamer
House sparrow
Killdeer
King vulture
Limpkin
Magnificent frigatebird
Oilbird
Osprey
Peregrine falcon
Red-billed scythebill
Roseate spoonbill
Ruddy turnstone
Rufous-bellied seedsnipe
Rufous-browed peppershrike
Rufous-tailed jacamar
Rusty-belted tapaculo
Scarlet macaw
Sharpbill
Spangled cotinga
Sparkling violet-ear
Sunbittern
Sungrebe
Toucan barbet
White-necked puffbird
Wilson's storm-petrel
Wire-tailed manakin

EGYPT

Barn swallow
Black tern
Black-winged stilt
Cattle egret
Common bulbul
Corncrake

Egyptian vulture
Eurasian bittern
European roller
Gray wagtail
Great cormorant
Great crested grebe
Greater flamingo
Greater hoopoe-lark
Greater painted snipe
Hoopoe
House sparrow
Mallard
Northern gannet
Northern lapwing
Northern raven
Osprey
Peregrine falcon
Rock pigeon
Ruddy turnstone
Stonechat
Zitting cisticola

EL SALVADOR

American anhinga
American mourning dove
Baltimore oriole
Barn owl
Barred antshrike
Belted kingfisher
Black rail
Black tern
Black-and-white warbler
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Blue-footed booby
Blue-gray gnatcatcher
Brown creeper
Brown pelican
Cattle egret
Cedar waxwing
Crested caracara
Great blue heron
Great kiskadee
Harris's hawk
House sparrow

Killdeer
 King vulture
 Limpkin
 Long-tailed manakin
 Magnificent frigatebird
 Northern raven
 Osprey
 Peregrine falcon
 Rock pigeon
 Roseate spoonbill
 Rose-throated becard
 Ruddy turnstone
 Rufous-browed peppershrike
 Rufous-tailed jacamar
 Sunbittern
 Sungrebe
 Whip-poor-will
 White-necked puffbird
 Wood stork
 Yellow-bellied sapsucker
 Yellow-breasted chat

EQUATORIAL GUINEA

African jacana
 African palm swift
 African paradise-flycatcher
 African pitta
 Barn swallow
 Black tern
 Black-winged stilt
 Cattle egret
 Collared pratincole
 Common bulbul
 Common waxbill
 Gray parrot
 Gray-necked picathartes
 Great blue turaco
 Great cormorant
 Great crested grebe
 Hammerhead
 Helmeted guineafowl
 Leaf-love
 Lyre-tailed honeyguide
 Osprey
 Peregrine falcon
 Ruddy turnstone

Sacred ibis
 Spotted flycatcher
 Village weaver
 Wilson's storm-petrel
 Zitting cisticola

ERITREA

African paradise-flycatcher
 African snipe
 Bar-breasted mousebird
 Cattle egret
 Collared pratincole
 Common bulbul
 Corncrake
 Crab plovers
 Egyptian vulture
 Eurasian bittern
 European roller
 European white stork
 Gray woodpecker
 Greater flamingo
 Greater hoopoe-lark
 Greater painted snipe
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Osprey
 Ostrich
 Peregrine falcon
 Red-billed oxpecker
 Rock pigeon
 Rose-ringed parakeet
 Ruddy turnstone
 Sacred ibis
 Secretary bird
 Small buttonquail
 Stonechat
 White-helmet shrike
 Wilson's storm-petrel
 Zitting cisticola

ESTONIA

Barn swallow
 Black tern
 Chaffinch

Common cuckoo
 Common murre
 Corncrake
 Dunnock
 Eurasian bittern
 Eurasian dipper
 Eurasian golden oriole
 European roller
 European starling
 European white stork
 Great cormorant
 Great crested grebe
 Great tit
 Hoopoe
 House sparrow
 Mallard
 Northern fulmar
 Northern gannet
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Osprey
 Red crossbill
 Rock pigeon
 Spotted flycatcher
 Willow ptarmigan
 Winter wren

ETHIOPIA

African jacana
 African palm swift
 African paradise-flycatcher
 African snipe
 Bar-breasted mousebird
 Barn swallow
 Black-winged stilt
 Buff-spotted flufftail
 Cattle egret
 Collared pratincole
 Common bulbul
 Common waxbill
 Corncrake
 Egyptian vulture
 Eurasian bittern
 European roller

European white stork
 Gray wagtail
 Gray woodpecker
 Great cormorant
 Great crested grebe
 Greater painted snipe
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Northern wryneck
 Osprey
 Ostrich
 Peregrine falcon
 Red-billed oxpecker
 Rose-ringed parakeet
 Sacred ibis
 Secretary bird
 Small buttonquail
 Stonechat
 Village weaver
 White-helmet shrike
 Yellow-fronted tinkerbird
 Zitting cisticola

FALKLAND ISLANDS

Arctic skua
 Crested caracara
 Emperor penguin
 House sparrow
 Macaroni penguin
 Magellanic penguin
 Peregrine falcon

FIJI

European starling
 Golden whistler
 White-tailed tropicbird

FINLAND

Arctic warbler
 Barn swallow
 Chaffinch
 Common cuckoo
 Common murre

Corncrake
 Dunnock
 Eurasian bittern
 Eurasian dipper
 European roller
 European starling
 Gray wagtail
 Great cormorant
 Great crested grebe
 Great tit
 Gyrfalcon
 Horned lark
 House sparrow
 Mute swan
 Northern fulmar
 Northern gannet
 Northern lapwing
 Northern raven
 Northern wryneck
 Osprey
 Peregrine falcon
 Puffin
 Red crossbill
 Red-throated loon
 Rock pigeon
 Ruddy turnstone
 Spotted flycatcher
 Spotted nutcracker
 Willow ptarmigan
 Winter wren

FRANCE

Barn swallow
 Black tern
 Black-winged stilt
 Cattle egret
 Chaffinch
 Common cuckoo
 Common loon
 Common murre
 Corncrake
 Dunnock
 Eurasian bittern
 Eurasian dipper
 Eurasian golden oriole
 European bee-eater

European roller
 European starling
 European white stork
 Gray wagtail
 Great auk
 Great cormorant
 Great crested grebe
 Great tit
 Greater flamingo
 Hoopoe
 House sparrow
 Mallard
 Manx shearwater
 Mute swan
 Northern fulmar
 Northern gannet
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Osprey
 Peregrine falcon
 Puffin
 Red crossbill
 Red-throated loon
 Rock pigeon
 Ruddy turnstone
 Snow finch
 Spotted flycatcher
 Stonechat
 Wilson's storm-petrel
 Winter wren
 Zitting cisticola

FRENCH GUIANA

American anhinga
 Barn owl
 Barn swallow
 Barred antshrike
 Black tern
 Black-capped donacobius
 Black-winged stilt
 Blue-black grassquit
 Blue-crowned motmot
 Brown pelican
 Cattle egret

Common trumpeter
 Crested caracara
 Gray antbird
 Gray potoo
 Great kiskadee
 Guianan cock-of-the-rock
 Hairy hermit
 Hoatzin
 King vulture
 Limpkin
 Magnificent frigatebird
 Osprey
 Peregrine falcon
 Roseate spoonbill
 Ruddy turnstone
 Rufous-browed peppershrike
 Rufous-tailed jacamar
 Scarlet macaw
 Spangled cotinga
 Sunbittern
 Sungrebe
 White-necked puffbird
 Wilson's storm-petrel
 Wood stork

GABON

African broadbill
 African jacana
 African palm swift
 African paradise-flycatcher
 African pitta
 Bar-breasted mousebird
 Barn swallow
 Black tern
 Black-winged stilt
 Buff-spotted flufftail
 Cattle egret
 Collared pratincole
 Common bulbul
 Common cuckoo
 Common waxbill
 Eurasian golden oriole
 Gray parrot
 Gray-necked picathartes
 Great blue turaco
 Great cormorant

Greater painted snipe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Leaf-love
 Lyre-tailed honeyguide
 Osprey
 Peregrine falcon
 Ruddy turnstone
 Sacred ibis
 Small buttonquail
 Spotted flycatcher
 Square-tailed drongo
 Stonechat
 Village weaver
 Wilson's storm-petrel
 Zitting cisticola

GAMBIA

African palm swift
 African paradise-flycatcher
 Black tern
 Black-winged stilt
 Cattle egret
 Collared pratincole
 Common bulbul
 Egyptian vulture
 Eurasian bittern
 Gray woodpecker
 Greater flamingo
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Leaf-love
 Magnificent frigatebird
 Northern wryneck
 Osprey
 Peregrine falcon
 Rose-ringed parakeet
 Ruddy turnstone
 Sacred ibis
 Secretary bird
 Small buttonquail
 Village weaver
 White-helmet shrike

Wilson's storm-petrel
 Yellow-fronted tinkerbird

GEORGIA

Barn swallow
 Chaffinch
 Common cuckoo
 Corncrake
 Dunnock
 Egyptian vulture
 Eurasian dipper
 Eurasian golden oriole
 European bee-eater
 European roller
 European starling
 Gray wagtail
 Great cormorant
 Great crested grebe
 Great tit
 Hoopoe
 Horned lark
 House sparrow
 Northern raven
 Northern wryneck
 Nuthatch
 Peregrine falcon
 Red crossbill
 Rock pigeon
 Snow finch
 Spotted flycatcher
 Stonechat
 Winter wren

GERMANY

Barn swallow
 Black tern
 Canada goose
 Chaffinch
 Common cuckoo
 Common murre
 Corncrake
 Dunnock
 Eurasian bittern
 Eurasian dipper
 Eurasian golden oriole

European roller
 European starling
 European white stork
 Gray wagtail
 Great auk
 Great bustard
 Great cormorant
 Great crested grebe
 Great tit
 Hoopoe
 House sparrow
 Mallard
 Manx shearwater
 Mute swan
 Northern fulmar
 Northern gannet
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Peregrine falcon
 Puffin
 Red crossbill
 Red-throated loon
 Rock pigeon
 Ruddy turnstone
 Snow bunting
 Snow finch
 Spotted flycatcher
 Spotted nutcracker
 Stonechat
 Winter wren

GHANA

African broadbill
 African jacana
 African palm swift
 African paradise-flycatcher
 African pitta
 Barn swallow
 Black tern
 Black-winged stilt
 Cattle egret
 Collared pratincole
 Common bulbul
 Eurasian bittern

European bee-eater
 European roller
 Gray parrot
 Gray woodpecker
 Great blue turaco
 Greater painted snipe
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Leaf-love
 Northern wryneck
 Osprey
 Peregrine falcon
 Rose-ringed parakeet
 Ruddy turnstone
 Sacred ibis
 Secretary bird
 Small buttonquail
 Spotted flycatcher
 Square-tailed drongo
 Village weaver
 White-helmet shrike
 Wilson's storm-petrel
 Yellow-fronted tinkerbird
 Zitting cisticola

GREECE

Barn swallow
 Chaffinch
 Common cuckoo
 Corncrake
 Crag martin
 Dunnock
 Egyptian vulture
 Eurasian bittern
 Eurasian dipper
 Eurasian golden oriole
 European bee-eater
 European roller
 European starling
 Gray wagtail
 Great cormorant
 Great crested grebe
 Great tit
 Hoopoe

Horned lark
 House sparrow
 Mallard
 Mute swan
 Northern gannet
 Northern lapwing
 Northern raven
 Northern wryneck
 Peregrine falcon
 Red crossbill
 Rock pigeon
 Spotted flycatcher
 Stonechat
 Winter wren
 Zitting cisticola

GREENLAND

Arctic skua
 Common loon
 Common murre
 Great auk
 Great cormorant
 Gyrfalcon
 King eider
 Mallard
 Manx shearwater
 Northern fulmar
 Northern gannet
 Northern raven
 Peregrine falcon
 Puffin
 Red-throated loon
 Ruddy turnstone
 Snow bunting
 Snowy owl

GUATEMALA

American anhinga
 American dipper
 American mourning dove
 American robin
 Baltimore oriole
 Barn owl
 Barred antshrike
 Belted kingfisher
 Black rail

Black tern
Black-and-white warbler
Black-capped vireo
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Blue-footed booby
Blue-gray gnatcatcher
Brown creeper
Brown pelican
Cattle egret
Cedar waxwing
Crested caracara
Gray catbird
Great blue heron
Great kiskadee
Harris's hawk
House sparrow
Killdeer
King vulture
Limpkin
Long-tailed manakin
Magnificent frigatebird
Northern raven
Osprey
Peregrine falcon
Plain chachalaca
Resplendent quetzal
Rock pigeon
Roseate spoonbill
Rose-throated becard
Ruddy turnstone
Rufous-browed peppershrike
Rufous-tailed jacamar
Savanna sparrow
Scarlet macaw
Sunbittern
Sungrebe
Whip-poor-will
White-necked puffbird
Wood stork
Yellow-bellied sapsucker
Yellow-breasted chat

GUINEA

African palm swift

African paradise-flycatcher
Barn swallow
Black tern
Black-winged stilt
Buff-spotted flufftail
Cattle egret
Collared pratincole
Common bulbul
Common waxbill
Eurasian bittern
European bee-eater
European roller
Gray parrot
Gray woodpecker
Great blue turaco
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
Leaf-love
Northern wryneck
Osprey
Peregrine falcon
Rock pigeon
Rose-ringed parakeet
Ruddy turnstone
Sacred ibis
Small buttonquail
Square-tailed drongo
Stonechat
Village weaver
White-helmet shrike
Wilson's storm-petrel
Yellow-fronted tinkerbird

GUINEA-BISSAU

African palm swift
African paradise-flycatcher
Barn swallow
Black tern
Black-winged stilt
Cattle egret
Collared pratincole
Common bulbul
Common waxbill
Egyptian vulture

Eurasian bittern
Gray parrot
Gray woodpecker
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
Leaf-love
Magnificent frigatebird
Northern wryneck
Osprey
Peregrine falcon
Rose-ringed parakeet
Ruddy turnstone
Sacred ibis
Small buttonquail
Square-tailed drongo
Village weaver
Wilson's storm-petrel

GUYANA

American anhinga
Barn owl
Barn swallow
Barred antshrike
Belted kingfisher
Black tern
Black-capped donacobius
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Brown pelican
Cattle egret
Common trumpeter
Crested caracara
Gray antbird
Gray potoo
Great kiskadee
Greater flamingo
Guianan cock-of-the-rock
Hairy hermit
Hoatzin
King vulture
Limpkin
Magnificent frigatebird
Oilbird

Osprey
Peregrine falcon
Roseate spoonbill
Ruddy turnstone
Rufous-browed peppershrike
Rufous-tailed jacamar
Scarlet macaw
Sharpbill
Spangled cotinga
Sparkling violet-ear
Sunbittern
Sungrebe
White-necked puffbird
Wilson's storm-petrel
Wood stork

HAITI

American mourning dove
Barn owl
Belted kingfisher
Black-and-white warbler
Black-winged stilt
Brown pelican
Cattle egret
Crested caracara
Greater flamingo
House sparrow
Killdeer
Limpkin
Magnificent frigatebird
Osprey
Palmchat
Peregrine falcon
Rock pigeon
Roseate spoonbill
Ruddy turnstone
White-tailed tropicbird
Wood stork
Yellow-bellied sapsucker

HONDURAS

American anhinga
American mourning dove
Baltimore oriole
Barn owl
Barred antshrike

Belted kingfisher
Black tern
Black-and-white warbler
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Blue-footed booby
Blue-gray gnatcatcher
Brown creeper
Brown pelican
Cattle egret
Cedar waxwing
Crested caracara
Gray catbird
Great blue heron
Great kiskadee
Harris's hawk
House sparrow
Killdeer
King vulture
Limpkin
Long-tailed manakin
Magnificent frigatebird
Northern raven
Osprey
Peregrine falcon
Plain chachalaca
Resplendent quetzal
Rock pigeon
Roseate spoonbill
Rose-throated becard
Ruddy turnstone
Rufous-browed peppershrike
Rufous-tailed jacamar
Scarlet macaw
Sunbittern
Sungrebe
Whip-poor-will
White-necked puffbird
Wood stork
Yellow-bellied sapsucker
Yellow-breasted chat

HUNGARY

Barn swallow
Black tern

Chaffinch
Collared pratincole
Common cuckoo
Corncrake
Duncock
Eurasian golden oriole
European bee-eater
European roller
European starling
European white stork
Gray wagtail
Great bustard
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Snow bunting
Spotted flycatcher
Stonechat
Winter wren

ICELAND

Arctic skua
Common loon
Common murre
European starling
Great auk
Great cormorant
Gyr Falcon
King eider
Mallard
Manx shearwater
Northern fulmar
Northern gannet
Northern raven
Puffin
Red-throated loon

Snow bunting

INDIA

Asian fairy-bluebird
Barn swallow
Baya weaver
Black bulbul
Black-naped monarch
Black-winged stilt
Cattle egret
Chaffinch
Collared pratincole
Common cuckoo
Common iora
Common myna
Coppersmith barbet
Crab plovers
Crag martin
Crested tree swift
Dollarbird
Egyptian vulture
Eurasian bittern
Eurasian golden oriole
European bee-eater
European roller
European starling
European white stork
Fire-breasted flowerpecker
Gray hypocolius
Gray nightjar
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Greater flamingo
Greater painted snipe
Greater racket-tailed drongo
Green magpie
Hooded pitta
Hoopoe
House sparrow
Mallard
Northern lapwing
Northern raven
Northern wryneck
Osprey

Peregrine falcon
Pheasant-tailed jacana
Purple sunbird
Rock pigeon
Rose-ringed parakeet
Ruby-cheeked sunbird
Ruddy turnstone
Satyr tragopan
Small buttonquail
Spotted munia
Spotted nutcracker
Stonechat
White-throated fantail
Wilson's storm-petrel
Zitting cisticola

INDONESIA

Arctic warbler
Asian fairy-bluebird
Australasian figbird
Australasian lark
Australian magpie-lark
Australian pratincole
Barn swallow
Barred eagle-owl
Baya weaver
Beach thick-knee
Black-and-red broadbill
Black-naped monarch
Black-winged stilt
Bornean bristlehead
Cattle egret
Common iora
Coppersmith barbet
Dollarbird
Eclectus parrot
Fan-tailed berrypecker
Feline owl-nightjar
Fiery minivet
Fire-breasted flowerpecker
Golden whistler
Gray nightjar
Gray wagtail
Gray-crowned babbler
Great cormorant
Great tit

Greater painted snipe
Greater racket-tailed drongo
Green magpie
Helmeted hornbill
Hooded pitta
King bird of paradise
Malaysian honeyguide
Maleo
Orange-breasted trogon
Osprey
Peregrine falcon
Pheasant-tailed jacana
Purple-bearded bee-eater
Rainbow lorikeet
Rock pigeon
Ruby-cheeked sunbird
Ruddy turnstone
Rufous-collared kingfisher
Small buttonquail
Southern cassowary
Spotted munia
Sulawesi red-knobbed
hornbill
Variable pitohui
White-throated fantail
Willie wagtail
Wilson's storm-petrel
Zebra finch
Zitting cisticola

IRAN

Barn swallow
Black-winged stilt
Cattle egret
Chaffinch
Common cuckoo
Common myna
Corncrake
Crab plovers
Crag martin
Dunnoek
Egyptian vulture
Eurasian dipper
Eurasian golden oriole
European bee-eater
European roller

European starling
 European white stork
 Gray hypocolius
 Gray wagtail
 Great bustard
 Great cormorant
 Great crested grebe
 Great tit
 Greater flamingo
 Greater hoopoe-lark
 Hoopoe
 Horned lark
 House sparrow
 Mallard
 Mute swan
 Northern lapwing
 Northern raven
 Nuthatch
 Osprey
 Peregrine falcon
 Purple sunbird
 Red-throated loon
 Rock pigeon
 Ruddy turnstone
 Snow finch
 Spotted flycatcher
 Stonechat
 Wilson's storm-petrel
 Winter wren

IRAQ

Black-winged stilt
 Cattle egret
 Chaffinch
 Collared pratincole
 Corncrake
 Dunnock
 Egyptian vulture
 Eurasian bittern
 European bee-eater
 European roller
 European starling
 Gray hypocolius
 Gray wagtail
 Great cormorant
 Great crested grebe

Greater hoopoe-lark
 Hoopoe
 House sparrow
 Mallard
 Northern lapwing
 Nuthatch
 Osprey
 Peregrine falcon
 Rock pigeon
 Spotted flycatcher
 Stonechat

IRELAND

Barn owl
 Barn swallow
 Canada goose
 Chaffinch
 Common cuckoo
 Common loon
 Common murre
 Corncrake
 Dunnock
 Eurasian dipper
 European starling
 Gray wagtail
 Great auk
 Great cormorant
 Great crested grebe
 Great tit
 House sparrow
 Mallard
 Manx shearwater
 Mute swan
 Northern gannet
 Northern lapwing
 Northern raven
 Peregrine falcon
 Puffin
 Red-throated loon
 Rock pigeon
 Ruddy turnstone
 Spotted flycatcher
 Stonechat
 Willow ptarmigan
 Winter wren

ISRAEL

Black-winged stilt
 Cattle egret
 Collared pratincole
 Common cuckoo
 Egyptian vulture
 European bee-eater
 European roller
 Great cormorant
 Greater flamingo
 Hoopoe
 Horned lark
 House sparrow
 Mallard
 Northern gannet
 Northern lapwing
 Peregrine falcon
 Rock pigeon
 Stonechat
 Winter wren
 Zitting cisticola

ITALY

Barn swallow
 Black tern
 Black-winged stilt
 Cattle egret
 Chaffinch
 Common cuckoo
 Corncrake
 Crag martin
 Dunnock
 Egyptian vulture
 Eurasian dipper
 Eurasian golden oriole
 European bee-eater
 European roller
 European starling
 Gray wagtail
 Great cormorant
 Great crested grebe
 Great tit
 Greater flamingo
 Hoopoe
 House sparrow
 Mallard

Mute swan
Northern gannet
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Snow finch
Spotted flycatcher
Stonechat
Winter wren
Zitting cisticola

IVORY COAST

African broadbill
African jacana
African palm swift
African paradise-flycatcher
African pitta
Barn swallow
Black tern
Black-winged stilt
Cattle egret
Collared pratincole
Common bulbul
Common waxbill
Eurasian bittern
European bee-eater
European roller
Gray parrot
Gray woodpecker
Great blue turaco
Green woodhoopoe
Hammerhead
Hoopoe
Leaf-love
Lyre-tailed honeyguide
Northern wryneck
Osprey
Peregrine falcon
Rose-ringed parakeet
Ruddy turnstone
Sacred ibis
Small buttonquail

Spotted flycatcher
Square-tailed drongo
Village weaver
White-helmet shrike
Wilson's storm-petrel
Yellow-fronted tinkerbird
Zitting cisticola

JAMAICA

American mourning dove
Barn owl
Belted kingfisher
Black rail
Black-and-white warbler
Brown pelican
Cattle egret
Crested caracara
European starling
Gray catbird
House sparrow
Killdeer
Magnificent frigatebird
Osprey
Peregrine falcon
Rock pigeon
Ruddy turnstone
White-tailed tropicbird
Wood stork

JAPAN

Arctic warbler
Barn swallow
Cattle egret
Common murre
Dollarbird
Eurasian bittern
Gray nightjar
Gray wagtail
Great cormorant
Great tit
Greater painted snipe
Hoopoe
Japanese white-eye
Laysan albatross
Mallard
Mute swan

Northern fulmar
Northern lapwing
Northern raven
Nuthatch
Osprey
Peregrine falcon
Red crossbill
Red-crowned crane
Red-throated loon
Rock pigeon
Saunders's gull
Spotted nutcracker
Stonechat
Willow ptarmigan
Winter wren

JORDAN

Black-winged stilt
Cattle egret
Collared pratincole
Common bulbul
Egyptian vulture
European bee-eater
European roller
Gray wagtail
Great cormorant
Hoopoe
House sparrow
Northern gannet
Northern lapwing
Peregrine falcon
Rock pigeon
Stonechat
Winter wren

KAZAKHSTAN

Barn swallow
Black tern
Black-winged stilt
Chaffinch
Collared pratincole
Common cuckoo
Common myna
Corncrake
Egyptian vulture
Eurasian bittern

Eurasian golden oriole
 European bee-eater
 European roller
 European starling
 European white stork
 Great cormorant
 Great crested grebe
 Great tit
 Greater flamingo
 Hoopoe
 Horned lark
 House sparrow
 Mallard
 Mute swan
 Northern raven
 Pallas's sandgrouse
 Peregrine falcon
 Red crossbill
 Red-throated loon
 Rock pigeon
 Snow bunting
 Spotted flycatcher
 Spotted nutcracker
 Stonechat
 Willow ptarmigan
 Winter wren

KENYA

African broadbill
 African jacana
 African palm swift
 African paradise-flycatcher
 African snipe
 Bar-breasted mousebird
 Barn swallow
 Black-winged stilt
 Buff-spotted flufftail
 Cattle egret
 Collared pratincole
 Common bulbul
 Common cuckoo
 Common waxbill
 Corncrake
 Crab plovers
 Egyptian vulture
 Eurasian golden oriole

European bee-eater
 European roller
 European white stork
 Golden-winged sunbird
 Gray parrot
 Gray wagtail
 Gray woodpecker
 Gray-crowned crane
 Great blue turaco
 Great cormorant
 Great crested grebe
 Greater flamingo
 Greater painted snipe
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Northern wryneck
 Osprey
 Ostrich
 Peregrine falcon
 Red-billed oxpecker
 Rock pigeon
 Rosy-breasted longclaw
 Ruddy turnstone
 Sacred ibis
 Secretary bird
 Shoebill
 Small buttonquail
 Southern ground-hornbill
 Southern red bishop
 Spotted flycatcher
 Square-tailed drongo
 Stonechat
 Village weaver
 White-helmet shrike
 Wilson's storm-petrel
 Zitting cisticola

KUWAIT

Black-winged stilt
 Cattle egret
 Chaffinch
 Collared pratincole
 Crab plovers
 Eurasian bittern

European roller
 Gray wagtail
 Great cormorant
 Great crested grebe
 Greater hoopoe-lark
 House sparrow
 Mallard
 Northern lapwing
 Nuthatch
 Osprey
 Peregrine falcon
 Rock pigeon
 Ruddy turnstone
 Spotted flycatcher
 Wilson's storm-petrel
 Zitting cisticola

KYRGYZSTAN

Barn swallow
 Chaffinch
 Common cuckoo
 Crag martin
 Egyptian vulture
 Eurasian bittern
 Eurasian golden oriole
 European roller
 European starling
 Gray wagtail
 Great cormorant
 Great crested grebe
 Great tit
 Hoopoe
 House sparrow
 Mallard
 Northern raven
 Pallas's sandgrouse
 Peregrine falcon
 Rock pigeon
 Snow finch
 Spotted flycatcher
 Stonechat
 Winter wren

LAOS

Asian fairy-bluebird
 Australasian lark

Barn swallow
Baya weaver
Black bulbul
Black-and-red broadbill
Black-crowned barwing
Black-naped monarch
Black-winged stilt
Cattle egret
Common cuckoo
Common iora
Common myna
Coppersmith barbet
Crested tree swift
Dollarbird
Eurasian bittern
Fire-breasted flowerpecker
Gray nightjar
Gray wagtail
Great cormorant
Greater painted snipe
Greater racket-tailed drongo
Green magpie
Hoopoe
Northern wryneck
Orange-breasted trogon
Peregrine falcon
Pheasant-tailed jacana
Purple sunbird
Rock pigeon
Ruby-cheeked sunbird
Small buttonquail
Spotted munia
Stonechat
White-throated fantail
Zitting cisticola

LATVIA

Barn swallow
Black tern
Chaffinch
Common cuckoo
Common murre
Corncrake
Dunnock
Eurasian bittern
Eurasian dipper

Eurasian golden oriole
European roller
European starling
European white stork
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Northern fulmar
Northern gannet
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Red crossbill
Rock pigeon
Spotted flycatcher
Spotted nutcracker
Willow ptarmigan
Winter wren

LEBANON

Black-winged stilt
Cattle egret
Collared pratincole
Common bulbul
Common cuckoo
Dunnock
Egyptian vulture
European bee-eater
European roller
Great cormorant
Greater flamingo
Hoopoe
Horned lark
House sparrow
Mallard
Northern gannet
Northern lapwing
Nuthatch
Peregrine falcon
Rock pigeon
Spotted flycatcher
Stonechat

Winter wren

LESOTHO

African jacana
African snipe
Barn swallow
Black-winged stilt
Blue bustard
Cattle egret
Common cuckoo
Common waxbill
Corncrake
European roller
European white stork
Great cormorant
Great crested grebe
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
House sparrow
Osprey
Peregrine falcon
Sacred ibis
Secretary bird
Small buttonquail
Southern red bishop
Spotted flycatcher
Stonechat
Village weaver
Zitting cisticola

LESSER ANTILLES

Barn owl
Belted kingfisher
Brown pelican
Cattle egret
Crested caracara
Greater flamingo
House sparrow
Killdeer
Magnificent frigatebird
Osprey
Peregrine falcon
Rock pigeon

Ruddy turnstone
White-tailed tropicbird
Wood stork

LIBERIA

African broadbill
African palm swift
African paradise-flycatcher
African pitta
Barn swallow
Black tern
Black-winged stilt
Buff-spotted flufftail
Cattle egret
Collared pratincole
Common bulbul
Common waxbill
Eurasian bittern
Gray parrot
Gray woodpecker
Great blue turaco
Hammerhead
Leaf-love
Lyre-tailed honeyguide
Northern wryneck
Osprey
Peregrine falcon
Ruddy turnstone
Sacred ibis
Small buttonquail
Spotted flycatcher
Village weaver
Wilson's storm-petrel

LIBYA

Barn swallow
Black-winged stilt
Common bulbul
Crag martin
Egyptian vulture
Eurasian bittern
Gray wagtail
Greater hoopoe-lark
House sparrow
Mallard
Northern gannet

Northern lapwing
Northern raven
Peregrine falcon
Rock pigeon
Ruddy turnstone
Stonechat
Winter wren

LIECHTENSTEIN

Barn swallow
Black tern
Chaffinch
Common cuckoo
Corncrake
Dunnoek
Eurasian golden oriole
European roller
European starling
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Mute swan
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Snow finch
Spotted flycatcher
Stonechat
Winter wren

LITHUANIA

Barn swallow
Black tern
Chaffinch
Common cuckoo
Common murre
Corncrake
Dunnoek

Eurasian bittern
Eurasian dipper
Eurasian golden oriole
European roller
European starling
European white stork
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Northern fulmar
Northern gannet
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Red crossbill
Rock pigeon
Spotted flycatcher
Spotted nutcracker
Winter wren

LUXEMBOURG

Barn swallow
Black tern
Chaffinch
Common cuckoo
Corncrake
Dunnoek
Eurasian golden oriole
European roller
European starling
European white stork
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Mute swan
Northern lapwing
Northern raven
Northern wryneck

Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Spotted flycatcher
Stonechat
Winter wren

MACEDONIA

Barn swallow
Chaffinch
Common cuckoo
Corncrake
Crag martin
Dunnock
Egyptian vulture
Eurasian dipper
Eurasian golden oriole
European bee-eater
European roller
European starling
European white stork
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Hoopoe
Horned lark
House sparrow
Mallard
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Snow bunting
Spotted flycatcher
Stonechat
Winter wren

MADAGASCAR

African palm swift
Black-winged stilt
Cattle egret

Common sunbird-asity
Crab plovers
Greater flamingo
Greater painted snipe
Hammerhead
Hoopoe
Peregrine falcon
Ruddy turnstone
Rufous vanga
Sacred ibis
Stonechat
White-breasted mesite
Wilson's storm-petrel

MALAWI

African broadbill
African jacana
African palm swift
African paradise-flycatcher
African pitta
African snipe
Bar-breasted mousebird
Barn swallow
Black-winged stilt
Buff-spotted flufftail
Cape batis
Cattle egret
Collared pratincole
Common bulbul
Common cuckoo
Common waxbill
Corncrake
Eurasian golden oriole
European bee-eater
European roller
European white stork
Gray go-away-bird
Gray-crowned crane
Great cormorant
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
House sparrow
Osprey

Peregrine falcon
Red-billed oxpecker
Rock pigeon
Sacred ibis
Secretary bird
Small buttonquail
Southern ground-hornbill
Southern red bishop
Spotted flycatcher
Square-tailed drongo
Stonechat
Village weaver
White-helmet shrike
Yellow-fronted tinkerbird
Zitting cisticola

MALAYSIA

Arctic warbler
Asian fairy-bluebird
Barn swallow
Barred eagle-owl
Baya weaver
Black-and-red broadbill
Black-naped monarch
Black-winged stilt
Common iora
Common myna
Coppersmith barbet
Dollarbird
Fiery minivet
Fire-breasted flowerpecker
Gray nightjar
Gray wagtail
Great cormorant
Greater painted snipe
Greater racket-tailed drongo
Green magpie
Helmeted hornbill
Hooded pitta
Malaysian honeyguide
Orange-breasted trogon
Osprey
Peregrine falcon
Pheasant-tailed jacana
Rock pigeon
Ruby-cheeked sunbird

Ruddy turnstone
Rufous-collared kingfisher
Spotted munia
White-throated fantail
Zitting cisticola

MALI

African jacana
African palm swift
African paradise-flycatcher
Barn swallow
Black-winged stilt
Cattle egret
Collared pratincole
Common bulbul
Egyptian vulture
Eurasian bittern
European bee-eater
European roller
European white stork
Gray wagtail
Gray woodpecker
Greater hoopoe-lark
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
Leaf-love
Northern wryneck
Osprey
Ostrich
Peregrine falcon
Rock pigeon
Rose-ringed parakeet
Sacred ibis
Secretary bird
Small buttonquail
Stonechat
Village weaver
White-helmet shrike
Yellow-fronted tinkerbird
Zitting cisticola

MAURITANIA

Barn swallow

Black-winged stilt
Cattle egret
Collared pratincole
Common bulbul
Crag martin
Egyptian vulture
Eurasian bittern
European roller
European white stork
Gray woodpecker
Greater flamingo
Greater hoopoe-lark
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
Magnificent frigatebird
Manx shearwater
Northern gannet
Osprey
Ostrich
Peregrine falcon
Rock pigeon
Rose-ringed parakeet
Ruddy turnstone
Secretary bird
Small buttonquail
Wilson's storm-petrel
Zitting cisticola

MAURITIUS

Dodo
Mauritius cuckoo-shrike

MEXICO

American anhinga
American avocet
American cliff swallow
American dipper
American goldfinch
American mourning dove
American robin
American white pelican
Anna's hummingbird
Baltimore oriole

Barn owl
Barn swallow
Barred antshrike
Belted kingfisher
Black rail
Black tern
Black-and-white warbler
Black-capped vireo
Black-winged stilt
Blue jay
Blue-black grassquit
Blue-crowned motmot
Blue-footed booby
Blue-gray gnatcatcher
Brown creeper
Brown pelican
Bushtit
Cactus wren
Canada goose
Cattle egret
Cedar waxwing
Common loon
Crested caracara
Eastern bluebird
Eastern phoebe
Eastern screech-owl
European starling
Gray catbird
Great blue heron
Great kiskadee
Greater roadrunner
Harris's hawk
Horned lark
House sparrow
House wren
Killdeer
King vulture
Limpkin
Loggerhead shrike
Long-billed curlew
Long-tailed manakin
Magnificent frigatebird
Mallard
Northern bobwhite quail
Northern gannet
Northern raven

Osprey
 Peregrine falcon
 Plain chachalaca
 Red-throated loon
 Red-winged blackbird
 Resplendent quetzal
 Rock pigeon
 Roseate spoonbill
 Rose-throated becard
 Ruddy turnstone
 Rufous-browed peppershrike
 Rufous-tailed jacamar
 Sandhill crane
 Savanna sparrow
 Scarlet macaw
 Song sparrow
 Sprague's pipit
 Sungrebe
 Verdin
 Western grebe
 Western scrub-jay
 Whip-poor-will
 White-necked puffbird
 Wild turkey
 Wilson's storm-petrel
 Winter wren
 Wood duck
 Wood stork
 Wrentit
 Yellow-bellied sapsucker
 Yellow-breasted chat

MOLDOVA

Barn swallow
 Black tern
 Chaffinch
 Collared pratincole
 Common cuckoo
 Corncrake
 Dunnock
 Eurasian bittern
 Eurasian golden oriole
 European bee-eater
 European roller
 European starling
 European white stork

Great cormorant
 Great crested grebe
 Great tit
 Hoopoe
 House sparrow
 Mallard
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Peregrine falcon
 Rock pigeon
 Snow bunting
 Spotted flycatcher
 Stonechat
 Winter wren

MONACO

Greater flamingo
 Northern gannet

MONGOLIA

Barn swallow
 Black tern
 Black-winged stilt
 Common cuckoo
 Crag martin
 Eurasian bittern
 Gray wagtail
 Great bustard
 Great cormorant
 Great crested grebe
 Hoopoe
 Horned lark
 House sparrow
 Mallard
 Mute swan
 Northern raven
 Northern wryneck
 Nuthatch
 Pallas's sandgrouse
 Peregrine falcon
 Red crossbill
 Rock pigeon
 Snow bunting
 Snow finch

Spotted flycatcher
 Spotted nutcracker
 Stonechat

MOROCCO

Barn swallow
 Black-winged stilt
 Cattle egret
 Chaffinch
 Collared pratincole
 Common bulbul
 Common cuckoo
 Common murre
 Corncrake
 Crag martin
 Dunnock
 Egyptian vulture
 Eurasian dipper
 Eurasian golden oriole
 European bee-eater
 European roller
 European starling
 Gray wagtail
 Great bustard
 Great cormorant
 Great crested grebe
 Greater flamingo
 Greater hoopoe-lark
 Hoopoe
 Horned lark
 House sparrow
 Magnificent frigatebird
 Mallard
 Manx shearwater
 Northern gannet
 Northern raven
 Ostrich
 Peregrine falcon
 Rock pigeon
 Ruddy turnstone
 Small buttonquail
 Spotted flycatcher
 Stonechat
 Wilson's storm-petrel
 Winter wren
 Zitting cisticola

MOZAMBIQUE

African broadbill
African jacana
African palm swift
African paradise-flycatcher
African pitta
African snipe
Bar-breasted mousebird
Barn swallow
Black-winged stilt
Buff-spotted flufftail
Cape batis
Cattle egret
Collared pratincole
Common bulbul
Common cuckoo
Common waxbill
Corncrake
Crab plovers
Eurasian golden oriole
European bee-eater
European roller
European white stork
Gray go-away-bird
Gray-crowned crane
Great cormorant
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
House sparrow
Osprey
Ostrich
Peregrine falcon
Rock pigeon
Rosy-breasted longclaw
Ruddy turnstone
Sacred ibis
Secretary bird
Small buttonquail
Southern ground-hornbill
Southern red bishop
Spotted flycatcher
Square-tailed drongo
Stonechat

Village weaver
White-helmet shrike
Wilson's storm-petrel
Yellow-fronted tinkerbird
Zitting cisticola

MYANMAR

Asian fairy-bluebird
Australasian lark
Barn swallow
Barred eagle-owl
Baya weaver
Black bulbul
Black-and-red broadbill
Black-naped monarch
Black-winged stilt
Cattle egret
Common cuckoo
Common iora
Common myna
Coppersmith barbet
Crested tree swift
Dollarbird
Fiery minivet
Fire-breasted flowerpecker
Gray nightjar
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Greater painted snipe
Greater racket-tailed drongo
Green magpie
Helmeted hornbill
Hooded pitta
Hoopoe
House sparrow
Mallard
Northern wryneck
Orange-breasted trogon
Osprey
Peregrine falcon
Pheasant-tailed jacana
Purple sunbird
Rock pigeon
Rose-ringed parakeet

Rose-ringed parakeet
Ruby-cheeked sunbird
Ruddy turnstone
Rufous-collared kingfisher
Small buttonquail
Spotted munia
Stonechat
White-throated fantail
Winter wren
Zitting cisticola

NAMIBIA

African jacana
African palm swift
African paradise-flycatcher
Arctic skua
Barn swallow
Black tern
Black-winged stilt
Cattle egret
Common cuckoo
Common waxbill
Egyptian vulture
Eurasian golden oriole
European roller
European white stork
Gray go-away-bird
Great cormorant
Great crested grebe
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
House sparrow
Namaqua sandgrouse
Osprey
Ostrich
Peregrine falcon
Rock pigeon
Ruddy turnstone
Sacred ibis
Secretary bird
Small buttonquail
Southern ground-hornbill
Southern red bishop

Spotted flycatcher
White-helmet shrike
Wilson's storm-petrel
Yellow-fronted tinkerbird
Zitting cisticola

NEPAL

Asian fairy-bluebird
Barn swallow
Black-naped monarch
Cattle egret
Common cuckoo
Coppersmith barbet
Crested tree swift
Dollarbird
Egyptian vulture
Eurasian bittern
Eurasian golden oriole
European roller
European white stork
Fire-breasted flowerpecker
Gray nightjar
Gray wagtail
Great cormorant
Great crested grebe
Greater painted snipe
Hooded pitta
Hoopoe
House sparrow
Northern wryneck
Osprey
Peregrine falcon
Pheasant-tailed jacana
Purple sunbird
Rock pigeon
Rose-ringed parakeet
Ruby-cheeked sunbird
Satyr tragopan
Small buttonquail
Snow finch
Spotted munia
Spotted nutcracker
Stonechat
White-throated fantail
Winter wren

Zitting cisticola

NETHERLANDS

Barn swallow
Black tern
Chaffinch
Common cuckoo
Common murre
Corncrake
Duncock
Eurasian golden oriole
European roller
European starling
European white stork
Great auk
Great cormorant
Great crested grebe
Great tit
House sparrow
Mallard
Manx shearwater
Mute swan
Northern fulmar
Northern gannet
Northern lapwing
Northern wryneck
Nuthatch
Peregrine falcon
Puffin
Red-throated loon
Rock pigeon
Ruddy turnstone
Spotted flycatcher
Stonechat
Winter wren

NEW CALEDONIA

Beach thick-knee
Black-winged stilt
House sparrow
Kagu
Osprey
Painted buttonquail
Peregrine falcon
Rainbow lorikeet

White-tailed tropicbird

NEW ZEALAND

Arctic skua
Black-winged stilt
Brown kiwi
Canada goose
Cattle egret
Chatham mollymawk
Common diving-petrel
Emperor penguin
European starling
Great cormorant
Great crested grebe
House sparrow
Kokako
Laughing kookaburra
Mallard
Mute swan
Rifleman
Rock pigeon
Ruddy turnstone
Variable oystercatcher
Wilson's storm-petrel
Yellowhead

NICARAGUA

American anhinga
American dipper
American mourning dove
Baltimore oriole
Barn owl
Barred antshrike
Belted kingfisher
Black tern
Black-and-white warbler
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Blue-footed booby
Brown creeper
Brown pelican
Cattle egret
Cedar waxwing
Crested caracara

Gray catbird
 Gray potoo
 Great blue heron
 Great kiskadee
 Harris's hawk
 House sparrow
 Killdeer
 King vulture
 Limpkin
 Long-tailed manakin
 Magnificent frigatebird
 Northern raven
 Osprey
 Peregrine falcon
 Plain chachalaca
 Resplendent quetzal
 Rock pigeon
 Roseate spoonbill
 Rose-throated becard
 Ruddy turnstone
 Rufous-browed peppershrike
 Rufous-tailed jacamar
 Scarlet macaw
 Sunbittern
 Sungrebe
 White-necked puffbird
 Wood stork
 Yellow-bellied sapsucker
 Yellow-breasted chat

NIGER

African jacana
 African palm swift
 African paradise-flycatcher
 Barn swallow
 Black-winged stilt
 Cattle egret
 Collared pratincole
 Common bulbul
 Egyptian vulture
 Eurasian bittern
 European white stork
 Gray woodpecker
 Greater hoopoe-lark
 Greater painted snipe
 Green woodhoopoe

Hammerhead
 Helmeted guineafowl
 Hoopoe
 Northern wryneck
 Osprey
 Ostrich
 Peregrine falcon
 Rock pigeon
 Rose-ringed parakeet
 Sacred ibis
 Secretary bird
 Small buttonquail
 Village weaver
 Yellow-fronted tinkerbird
 Zitting cisticola

NIGERIA

African jacana
 African palm swift
 African paradise-flycatcher
 African pitta
 Bar-breasted mousebird
 Barn swallow
 Black tern
 Black-winged stilt
 Buff-spotted flufftail
 Cattle egret
 Collared pratincole
 Common bulbul
 Common waxbill
 Eurasian bittern
 European roller
 European white stork
 Gray parrot
 Gray woodpecker
 Gray-necked picathartes
 Great blue turaco
 Greater painted snipe
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Leaf-love
 Lyre-tailed honeyguide
 Northern wryneck
 Osprey

Peregrine falcon
 Rose-ringed parakeet
 Ruddy turnstone
 Sacred ibis
 Secretary bird
 Small buttonquail
 Spotted flycatcher
 Square-tailed drongo
 White-helmet shrike
 Wilson's storm-petrel
 Yellow-fronted tinkerbird
 Zitting cisticola

NORTH KOREA

Arctic warbler
 Barn swallow
 Common cuckoo
 Common murre
 Dollarbird
 Eurasian bittern
 Gray nightjar
 Gray wagtail
 Great bustard
 Great cormorant
 Great tit
 Greater painted snipe
 Hoopoe
 Mute swan
 Nuthatch
 Red crossbill
 Red-crowned crane
 Red-throated loon
 Rock pigeon
 Saunder's gull
 Stonechat
 Winter wren

NORWAY

Arctic skua
 Arctic warbler
 Barn swallow
 Chaffinch
 Common cuckoo
 Common loon
 Common murre

Corncrake
 Dunnock
 Eurasian dipper
 European starling
 Gray wagtail
 Great auk
 Great cormorant
 Great crested grebe
 Great tit
 Gyrfalcon
 Horned lark
 House sparrow
 King eider
 Manx shearwater
 Northern fulmar
 Northern gannet
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Osprey
 Peregrine falcon
 Puffin
 Red crossbill
 Red-throated loon
 Rock pigeon
 Ruddy turnstone
 Snow bunting
 Snowy owl
 Spotted flycatcher
 Spotted nutcracker
 Willow ptarmigan
 Winter wren

OMAN

Crab plovers
 Egyptian vulture
 European roller
 Gray wagtail
 Greater hoopoe-lark
 Hoopoe
 House sparrow
 Osprey
 Peregrine falcon
 Purple sunbird
 Rock pigeon

Ruddy turnstone
 Wilson's storm-petrel

PAKISTAN

Barn swallow
 Baya weaver
 Black bulbul
 Black-winged stilt
 Cattle egret
 Chaffinch
 Collared pratincole
 Common cuckoo
 Common myna
 Coppersmith barbet
 Crab plovers
 Crag martin
 Egyptian vulture
 Eurasian bittern
 Eurasian golden oriole
 European bee-eater
 European roller
 European starling
 European white stork
 Gray hypocolius
 Gray wagtail
 Great cormorant
 Great crested grebe
 Great tit
 Greater flamingo
 Greater hoopoe-lark
 Greater painted snipe
 Hoopoe
 House sparrow
 Mallard
 Mute swan
 Northern lapwing
 Northern raven
 Osprey
 Peregrine falcon
 Pheasant-tailed jacana
 Purple sunbird
 Rock pigeon
 Rose-ringed parakeet
 Ruddy turnstone
 Small buttonquail
 Snow finch

Spotted flycatcher
 Spotted nutcracker
 Stonechat
 White-throated fantail
 Wilson's storm-petrel

PANAMA

American anhinga
 American dipper
 American mourning dove
 Baltimore oriole
 Barn owl
 Barn swallow
 Barred antshrike
 Belted kingfisher
 Black guan
 Black rail
 Black tern
 Black-and-white warbler
 Black-capped donacobius
 Black-winged stilt
 Blue-black grassquit
 Blue-crowned motmot
 Blue-footed booby
 Brown pelican
 Cattle egret
 Crested caracara
 Gray catbird
 Gray potoo
 Great blue heron
 Great kiskadee
 Hairy hermit
 Harris's hawk
 Highland tinamou
 House sparrow
 Killdeer
 King vulture
 Limpkin
 Magnificent frigatebird
 Oilbird
 Osprey
 Peregrine falcon
 Red-billed scythebill
 Resplendent quetzal
 Rock pigeon
 Roseate spoonbill

Rose-throated becard
Ruddy turnstone
Rufous-browed peppershrike
Rufous-tailed jacamar
Scarlet macaw
Sharpbill
Sunbittern
Sungrebe
White-necked puffbird
Wood stork
Yellow-bellied sapsucker

PAPUA NEW GUINEA

Australasian figbird
Australasian lark
Australian magpie-lark
Australian pratincole
Barn swallow
Beach thick-knee
Black-winged stilt
Cattle egret
Dollarbird
Eclectus parrot
Fan-tailed berrypecker
Feline owl-nightjar
Golden whistler
Gray wagtail
Gray-crowned babbler
Hooded pitta
Jacky winter
King bird of paradise
Osprey
Peregrine falcon
Rainbow lorikeet
Ribbon-tailed astrapia
Ruddy turnstone
Southern cassowary
Variable pitohui
White-tailed tropicbird
Willie wagtail
Wilson's storm-petrel
Zitting cisticola

PARAGUAY

American anhinga
American cliff swallow

Barn owl
Barn swallow
Barred antshrike
Baywing
Black-capped donacobius
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Cattle egret
Crested caracara
Gray potoo
Great kiskadee
Greater thornbird
Hairy hermit
Harris's hawk
House sparrow
King vulture
Limpkin
Peregrine falcon
Red-billed scythebill
Red-legged seriema
Roseate spoonbill
Rufous hornero
Rufous-browed peppershrike
Rufous-tailed jacamar
Sharpbill
Sungrebe
Toco toucan
Wood stork

PERU

Amazonian umbrellabird
American anhinga
Arctic skua
Barn owl
Barn swallow
Barred antshrike
Black rail
Black tern
Black-capped donacobius
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Blue-footed booby
Brown pelican
Cattle egret

Chimney swift
Common trumpeter
Coppery-chested jacamar
Crested caracara
Gray antbird
Gray potoo
Gray-breasted mountain-toucan
Great kiskadee
Hairy hermit
Harris's hawk
Highland tinamou
Hoatzin
Horned screamer
House sparrow
Killdeer
King vulture
Lesser rhea
Limpkin
Magellanic penguin
Oilbird
Osprey
Peregrine falcon
Peruvian plantcutter
Red-billed scythebill
Rock pigeon
Roseate spoonbill
Ruddy turnstone
Rufous-bellied seedsnipe
Rufous-browed peppershrike
Rufous-capped nunlet
Rufous-tailed jacamar
Rusty-belted tapaculo
Scarlet macaw
Sharpbill
Spangled cotinga
Sparkling violet-ear
Sunbittern
Sungrebe
Wattled curassow
White-necked puffbird
Wilson's storm-petrel
Wire-tailed manakin
Wood stork

PHILIPPINES

Arctic warbler

Asian fairy-bluebird
 Australasian lark
 Barn swallow
 Beach thick-knee
 Black-naped monarch
 Black-winged stilt
 Cattle egret
 Coppermouth barbet
 Dollarbird
 Fiery minivet
 Fire-breasted flowerpecker
 Gray nightjar
 Gray wagtail
 Greater painted snipe
 Hooded pitta
 Japanese white-eye
 Little slaty flycatcher
 Luzon bleeding heart
 Osprey
 Peregrine falcon
 Pheasant-tailed jacana
 Rock pigeon
 Ruddy turnstone
 Small buttonquail
 Spotted munia
 Stripe-headed rhabdornis
 Zitting cisticola

POLAND

Barn swallow
 Black tern
 Chaffinch
 Common cuckoo
 Common murre
 Corncrake
 Dunnock
 Eurasian bittern
 Eurasian dipper
 Eurasian golden oriole
 European roller
 European starling
 European white stork
 Gray wagtail
 Great cormorant
 Great crested grebe
 Great tit

Hoopoe
 House sparrow
 Mallard
 Northern fulmar
 Northern gannet
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Osprey
 Peregrine falcon
 Puffin
 Red crossbill
 Rock pigeon
 Snow bunting
 Snow finch
 Spotted flycatcher
 Spotted nutcracker
 Winter wren

PORTUGAL

Barn swallow
 Black-winged stilt
 Chaffinch
 Collared pratincole
 Common cuckoo
 Common loon
 Common murre
 Crag martin
 Dunnock
 Egyptian vulture
 Eurasian dipper
 Eurasian golden oriole
 European bee-eater
 European roller
 European white stork
 Gray wagtail
 Great bustard
 Great cormorant
 Great crested grebe
 Great tit
 Hoopoe
 House sparrow
 Mallard
 Manx shearwater
 Northern gannet

Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Osprey
 Peregrine falcon
 Red crossbill
 Red-throated loon
 Rock pigeon
 Ruddy turnstone
 Spotted flycatcher
 Stonechat
 Wilson's storm-petrel
 Winter wren
 Zitting cisticola

PUERTO RICO

American mourning dove
 Barn owl
 Belted kingfisher
 Brown pelican
 Cattle egret
 Crested caracara
 European starling
 Greater flamingo
 House sparrow
 Killdeer
 Magnificent frigatebird
 Osprey
 Peregrine falcon
 Rock pigeon
 Ruddy turnstone
 White-tailed tropicbird
 Wood stork
 Yellow-bellied sapsucker

QATAR

European roller
 Greater hoopoe-lark
 Hoopoe
 House sparrow
 Stonechat

ROMANIA

Barn swallow

Black tern
 Black-winged stilt
 Chaffinch
 Collared pratincole
 Common cuckoo
 Corncrake
 Dunnock
 Egyptian vulture
 Eurasian bittern
 Eurasian dipper
 Eurasian golden oriole
 European bee-eater
 European roller
 European starling
 European white stork
 Gray wagtail
 Great cormorant
 Great crested grebe
 Great tit
 Hoopoe
 House sparrow
 Mallard
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Peregrine falcon
 Red crossbill
 Red-throated loon
 Rock pigeon
 Snow bunting
 Spotted flycatcher
 Stonechat
 Winter wren

RUSSIA

Arctic skua
 Arctic warbler
 Barn swallow
 Black tern
 Black-winged stilt
 Cattle egret
 Chaffinch
 Collared pratincole
 Common cuckoo

Common murre
 Corncrake
 Crag martin
 Dollarbird
 Dunnock
 Eurasian bittern
 Eurasian dipper
 Eurasian golden oriole
 European bee-eater
 European starling
 European white stork
 Gray nightjar
 Gray wagtail
 Great bustard
 Great cormorant
 Great crested grebe
 Great tit
 Greater painted snipe
 Gyrfalcon
 Hoopoe
 Horned lark
 House sparrow
 King eider
 Mallard
 Mute swan
 Northern fulmar
 Northern gannet
 Northern lapwing
 Northern raven
 Northern wryneck
 Nuthatch
 Osprey
 Pallas's sandgrouse
 Peregrine falcon
 Puffin
 Red crossbill
 Red-crowned crane
 Red-throated loon
 Rock pigeon
 Ruddy turnstone
 Sandhill crane
 Snow bunting
 Snow finch
 Snowy owl
 Spotted flycatcher
 Spotted nutcracker

Stonechat
 Willow ptarmigan
 Winter wren

RWANDA

African jacana
 African palm swift
 African paradise-flycatcher
 African pitta
 African snipe
 Bar-breasted mousebird
 Barn swallow
 Black-winged stilt
 Buff-spotted flufftail
 Cattle egret
 Collared pratincole
 Common bulbul
 Common cuckoo
 Common waxbill
 Corncrake
 Eurasian golden oriole
 European bee-eater
 European roller
 European white stork
 Gray parrot
 Gray woodpecker
 Gray-crowned crane
 Great blue turaco
 Great cormorant
 Great crested grebe
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Osprey
 Ostrich
 Peregrine falcon
 Red-billed oxpecker
 Sacred ibis
 Shoebill
 Small buttonquail
 Southern red bishop
 Spotted flycatcher
 Stonechat
 Village weaver

Yellow-fronted tinkerbird
Zitting cisticola

SÃO TOMÉ AND PRÍNCIPE

White-tailed tropicbird

SAUDI ARABIA

African palm swift
Black-winged stilt
Cattle egret
Crab plovers
Crag martin
Egyptian vulture
European roller
Gray hypocolius
Gray wagtail
Great cormorant
Greater hoopoe-lark
Hammerhead
Hoopoe
House sparrow
Mallard
Northern lapwing
Osprey
Peregrine falcon
Rock pigeon
Ruddy turnstone
Stonechat
Wilson's storm-petrel

SENEGAL

African palm swift
African paradise-flycatcher
Black tern
Black-winged stilt
Cattle egret
Collared pratincole
Common bulbul
Common waxbill
Egyptian vulture
Eurasian bittern
European roller
European white stork
Gray wagtail

Gray woodpecker
Greater flamingo
Greater hoopoe-lark
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
Leaf-love
Magnificent frigatebird
Northern wryneck
Osprey
Peregrine falcon
Rose-ringed parakeet
Ruddy turnstone
Sacred ibis
Secretary bird
Small buttonquail
Village weaver
White-helmet shrike
Wilson's storm-petrel
Yellow-fronted tinkerbird
Zitting cisticola

SEYCHELLES

White-tailed tropicbird

SIERRA LEONE

African broadbill
African palm swift
African paradise-flycatcher
African pitta
Barn swallow
Black tern
Black-winged stilt
Buff-spotted flufftail
Cattle egret
Collared pratincole
Common bulbul
Common waxbill
Eurasian bittern
Gray parrot
Gray woodpecker
Great blue turaco
Hammerhead
Leaf-love

Lyre-tailed honeyguide
Northern wryneck
Osprey
Peregrine falcon
Rose-ringed parakeet
Ruddy turnstone
Sacred ibis
Small buttonquail
Spotted flycatcher
Square-tailed drongo
Village weaver
Wilson's storm-petrel

SINGAPORE

Baya weaver

SLOVAKIA

Barn swallow
Black tern
Chaffinch
Collared pratincole
Common cuckoo
Corncrake
Dunnock
Eurasian golden oriole
European bee-eater
European roller
European starling
European white stork
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Snow bunting
Snow finch
Spotted flycatcher

Stonechat
Winter wren

SLOVENIA

Barn swallow
Black tern
Chaffinch
Collared pratincole
Common cuckoo
Corncrake
Dunnock
Eurasian dipper
Eurasian golden oriole
European bee-eater
European roller
European starling
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Rock pigeon
Snow bunting
Snow finch
Spotted flycatcher
Stonechat
Winter wren
Zitting cisticola

SOMALIA

African jacana
African palm swift
African paradise-flycatcher
Bar-breasted mousebird
Barn swallow
Black-winged stilt
Cattle egret
Collared pratincole
Common bulbul

Corncrake
Crab plovers
Egyptian vulture
European roller
European white stork
Gray wagtail
Great cormorant
Greater hoopoe-lark
Green woodhoopoe
Hammerhead
Hoopoe
Ostrich
Peregrine falcon
Red-billed oxpecker
Rose-ringed parakeet
Ruddy turnstone
Sacred ibis
Small buttonquail
Spotted flycatcher
Square-tailed drongo
Stonechat
White-helmet shrike
Wilson's storm-petrel

SOUTH AFRICA

African jacana
African palm swift
African paradise-flycatcher
African snipe
Arctic skua
Bar-breasted mousebird
Barn swallow
Black tern
Black-winged stilt
Blue bustard
Buff-spotted flufftail
Cape batis
Cape sugarbird
Cattle egret
Collared pratincole
Common bulbul
Common cuckoo
Common waxbill
Corncrake
Crab plovers
Eurasian golden oriole

European bee-eater
European roller
European starling
European white stork
Gray-crowned crane
Great cormorant
Great crested grebe
Greater flamingo
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
House sparrow
Manx shearwater
Mute swan
Namaqua sandgrouse
Osprey
Ostrich
Peregrine falcon
Red-billed oxpecker
Rock pigeon
Rosy-breasted longclaw
Ruddy turnstone
Sacred ibis
Secretary bird
Small buttonquail
Southern ground-hornbill
Southern red bishop
Spotted flycatcher
Square-tailed drongo
Stonechat
Village weaver
White-helmet shrike
Wilson's storm-petrel
Yellow-fronted tinkerbird
Zitting cisticola

SOUTH KOREA

Arctic warbler
Barn swallow
Cattle egret
Common cuckoo
Common murre
Dollarbird
Eurasian bittern

Gray nightjar
Gray wagtail
Great cormorant
Great tit
Greater painted snipe
Japanese white-eye
Mallard
Mute swan
Northern lapwing
Nuthatch
Red crossbill
Red-throated loon
Rock pigeon
Saunders's gull
Stonechat
Winter wren

SPAIN

Barn swallow
Black-winged stilt
Chaffinch
Collared pratincole
Common cuckoo
Common loon
Common murre
Corncrake
Crag martin
Dunnock
Egyptian vulture
Eurasian bittern
Eurasian dipper
Eurasian golden oriole
European bee-eater
European roller
European white stork
Gray wagtail
Great auk
Great bustard
Great cormorant
Great crested grebe
Great tit
Greater flamingo
Hoopoe
House sparrow
Mallard
Manx shearwater

Northern fulmar
Northern gannet
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Red-throated loon
Rock pigeon
Ruddy turnstone
Small buttonquail
Snow finch
Spotted flycatcher
Stonechat
Wilson's storm-petrel
Winter wren
Zitting cisticola

SRI LANKA

Baya weaver
Black bulbul
Common iora
Common myna
Coppersmith barbet
Crested tree swift
Dollarbird
Eurasian golden oriole
Gray nightjar
Great tit
Greater racket-tailed drongo
House sparrow
Pheasant-tailed jacana
Purple sunbird
Rose-ringed parakeet
Spotted munia
White-throated fantail
Wilson's storm-petrel

SUDAN

African jacana
African palm swift
African paradise-flycatcher
Bar-breasted mousebird
Barn swallow

Black tern
Black-winged stilt
Buff-spotted flufftail
Cattle egret
Collared pratincole
Common bulbul
Common waxbill
Corncrake
Crab plovers
Crag martin
Egyptian vulture
Eurasian bittern
European roller
European white stork
Gray wagtail
Gray woodpecker
Great blue turaco
Great cormorant
Greater flamingo
Greater hoopoe-lark
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
Leaf-love
Northern wryneck
Osprey
Ostrich
Peregrine falcon
Red-billed oxpecker
Rock pigeon
Rose-ringed parakeet
Ruddy turnstone
Sacred ibis
Secretary bird
Shoebill
Small buttonquail
Spotted flycatcher
Square-tailed drongo
Stonechat
Village weaver
White-helmet shrike
Wilson's storm-petrel
Yellow-fronted tinkerbird
Zitting cisticola

SURINAME

American anhinga
Barn owl
Barn swallow
Barred antshrike
Black tern
Black-capped donacobius
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Brown pelican
Cattle egret
Common trumpeter
Crested caracara
Gray antbird
Gray potoo
Great kiskadee
Guianan cock-of-the-rock
Hairy hermit
Hoatzin
King vulture
Limpkin
Magnificent frigatebird
Osprey
Peregrine falcon
Roseate spoonbill
Ruddy turnstone
Rufous-browed peppershrike
Scarlet macaw
Sharpbill
Spangled cotinga
Sunbittern
Sungrebe
White-necked puffbird
Wilson's storm-petrel
Wood stork

SWAZILAND

African jacana
African palm swift
African paradise-flycatcher
African snipe
Barn swallow
Black-winged stilt
Buff-spotted flufftail
Cape batis

Cattle egret
Collared pratincole
Common bulbul
Common cuckoo
Common waxbill
Corncrake
European bee-eater
European roller
European white stork
Great cormorant
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
House sparrow
Osprey
Peregrine falcon
Sacred ibis
Secretary bird
Small buttonquail
Southern ground-hornbill
Southern red bishop
Spotted flycatcher
Stonechat
Village weaver
White-helmet shrike
Zitting cisticola

SWEDEN

Barn swallow
Chaffinch
Common cuckoo
Common murre
Corncrake
Dunnoek
Eurasian bittern
Eurasian dipper
European roller
European starling
Gray wagtail
Great auk
Great cormorant
Great crested grebe
Great tit
Gyr Falcon

Hoopoe
Horned lark
House sparrow
Mute swan
Northern fulmar
Northern gannet
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Osprey
Peregrine falcon
Puffin
Red crossbill
Red-throated loon
Rock pigeon
Ruddy turnstone
Snow bunting
Spotted flycatcher
Spotted nutcracker
Willow ptarmigan
Winter wren

SWITZERLAND

Barn swallow
Black tern
Chaffinch
Common cuckoo
Corncrake
Dunnoek
Eurasian dipper
Eurasian golden oriole
European roller
European starling
European white stork
Gray wagtail
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Mute swan
Northern lapwing
Northern raven
Northern wryneck

Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Snow finch
Spotted flycatcher
Spotted nutcracker
Stonechat
Winter wren

SYRIA

Black-winged stilt
Cattle egret
Chaffinch
Collared pratincole
Common bulbul
Common cuckoo
Corncrake
Crag martin
Dunnock
Egyptian vulture
European bee-eater
European roller
European starling
Great bustard
Great cormorant
Greater flamingo
Hoopoe
House sparrow
Mallard
Northern gannet
Northern lapwing
Nuthatch
Peregrine falcon
Red crossbill
Rock pigeon
Spotted flycatcher
Stonechat
Winter wren

TAJIKISTAN

Barn swallow
Chaffinch
Common cuckoo
Crag martin
Egyptian vulture

Eurasian golden oriole
European roller
European starling
Great bustard
Great cormorant
Great crested grebe
Great tit
Hoopoe
House sparrow
Mallard
Northern raven
Peregrine falcon
Rock pigeon
Snow finch
Spotted flycatcher
Stonechat
Winter wren

TANZANIA

African broadbill
African jacana
African palm swift
African paradise-flycatcher
African pitta
African snipe
Bar-breasted mousebird
Barn swallow
Black-winged stilt
Buff-spotted flufftail
Cattle egret
Collared pratincole
Common bulbul
Common waxbill
Corncrake
Crab plovers
Eurasian golden oriole
European bee-eater
European roller
European white stork
Golden-winged sunbird
Gray go-away-bird
Gray wagtail
Gray woodpecker
Great cormorant
Great crested grebe
Greater flamingo

Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
House sparrow
Leaf-love
Osprey
Ostrich
Peregrine falcon
Red-billed oxpecker
Rock pigeon
Rosy-breasted longclaw
Ruddy turnstone
Sacred ibis
Secretary bird
Shoebill
Small buttonquail
Southern ground-hornbill
Southern red bishop
Spotted flycatcher
Square-tailed drongo
Stonechat
Village weaver
White-helmet shrike
Wilson's storm-petrel
Yellow-fronted tinkerbird
Zitting cisticola

THAILAND

Arctic warbler
Asian fairy-bluebird
Australasian lark
Barn swallow
Barred eagle-owl
Baya weaver
Black bulbul
Black-and-red broadbill
Black-naped monarch
Black-winged stilt
Cattle egret
Common cuckoo
Common iora
Common myna
Coppersmith barbet
Crested tree swift

Dollarbird
 Fiery minivet
 Fire-breasted flowerpecker
 Gray nightjar
 Gray wagtail
 Great cormorant
 Greater painted snipe
 Greater racket-tailed drongo
 Green magpie
 Helmeted hornbill
 Hooded pitta
 Hoopoe
 Malaysian honeyguide
 Northern lapwing
 Northern wryneck
 Orange-breasted trogon
 Osprey
 Peregrine falcon
 Pheasant-tailed jacana
 Purple sunbird
 Rock pigeon
 Ruby-cheeked sunbird
 Ruddy turnstone
 Rufous-collared kingfisher
 Small buttonquail
 Spotted munia
 Stonechat
 White-throated fantail
 Zitting cisticola

TOGO

African jacana
 African palm swift
 African paradise-flycatcher
 Barn swallow
 Black tern
 Black-winged stilt
 Cattle egret
 Collared pratincole
 Common bulbul
 Eurasian bittern
 European bee-eater
 European roller
 Gray parrot
 Gray woodpecker
 Great blue turaco

Greater painted snipe
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 Leaf-love
 Northern wryneck
 Osprey
 Peregrine falcon
 Rose-ringed parakeet
 Ruddy turnstone
 Sacred ibis
 Secretary bird
 Small buttonquail
 Spotted flycatcher
 Square-tailed drongo
 Village weaver
 White-helmet shrike
 Wilson's storm-petrel
 Yellow-fronted tinkerbird
 Zitting cisticola

TRINIDAD AND TOBAGO

Blue-crowned motmot
 Gray potoo
 Hairy hermit
 Oilbird
 Rufous-tailed jacamar

TUNISIA

Barn swallow
 Black-winged stilt
 Collared pratincole
 Common bulbul
 Corncrake
 Crag martin
 Dunnock
 Egyptian vulture
 Eurasian bittern
 European bee-eater
 European roller
 European starling
 Gray wagtail
 Great cormorant
 Great crested grebe

Greater flamingo
 Greater hoopoe-lark
 Hoopoe
 House sparrow
 Northern gannet
 Northern lapwing
 Northern raven
 Northern wryneck
 Peregrine falcon
 Rock pigeon
 Ruddy turnstone
 Small buttonquail
 Spotted flycatcher
 Stonechat
 Winter wren
 Zitting cisticola

TURKEY

Barn swallow
 Black tern
 Cattle egret
 Chaffinch
 Collared pratincole
 Common bulbul
 Common cuckoo
 Corncrake
 Crag martin
 Dunnock
 Egyptian vulture
 Eurasian bittern
 Eurasian dipper
 Eurasian golden oriole
 European bee-eater
 European roller
 European starling
 Gray wagtail
 Great bustard
 Great cormorant
 Great crested grebe
 Great tit
 Greater flamingo
 Hoopoe
 Horned lark
 House sparrow
 Mallard
 Mute swan

Northern gannet
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Peregrine falcon
Red crossbill
Red-throated loon
Rock pigeon
Snow finch
Spotted flycatcher
Stonechat
Winter wren
Zitting cisticola

TURKMENISTAN

Barn swallow
Black-winged stilt
Cattle egret
Chaffinch
Collared pratincole
Common cuckoo
Common myna
Crag martin
Egyptian vulture
Eurasian bittern
Eurasian golden oriole
European bee-eater
European roller
European starling
Gray hypocolius
Great cormorant
Great crested grebe
Great tit
Hoopoe
Horned lark
House sparrow
Mallard
Northern lapwing
Northern raven
Nuthatch
Peregrine falcon
Red-throated loon
Rock pigeon
Spotted flycatcher

Winter wren

UGANDA

African broadbill
African jacana
African palm swift
African paradise-flycatcher
African pitta
African snipe
Bar-breasted mousebird
Barn swallow
Black-winged stilt
Buff-spotted flufftail
Cattle egret
Collared pratincole
Common bulbul
Common cuckoo
Common waxbill
Corncrake
Egyptian vulture
Eurasian golden oriole
European roller
European white stork
Golden-winged sunbird
Gray parrot
Gray woodpecker
Gray-crowned crane
Great blue turaco
Great cormorant
Great crested grebe
Greater painted snipe
Green woodhoopoe
Hammerhead
Hemmed guineafowl
Hoopoe
Leaf-love
Northern wryneck
Osprey
Ostrich
Peregrine falcon
Red-billed oxpecker
Rose-ringed parakeet
Sacred ibis
Secretary bird
Shoebill

Small buttonquail
Southern red bishop
Spotted flycatcher
Village weaver
White-helmet shrike
Yellow-fronted tinkerbird
Zitting cisticola

UKRAINE

Barn swallow
Black tern
Black-winged stilt
Chaffinch
Collared pratincole
Common cuckoo
Corncrake
Dunnock
Eurasian bittern
Eurasian golden oriole
European bee-eater
European roller
European starling
European white stork
Gray wagtail
Great bustard
Great cormorant
Great crested grebe
Great tit
Hoopoe
Horned lark
House sparrow
Mallard
Mute swan
Northern lapwing
Northern raven
Northern wryneck
Nuthatch
Osprey
Peregrine falcon
Red crossbill
Red-throated loon
Rock pigeon
Snow bunting
Spotted flycatcher
Spotted nutcracker

Stonechat
Winter wren

UNITED ARAB EMIRATES

Crab plovers
Egyptian vulture
European roller
Greater hoopoe-lark
Hoopoe
House sparrow
Northern lapwing
Osprey
Purple sunbird
Rock pigeon
Ruddy turnstone
Stonechat
Wilson's storm-petrel

UNITED KINGDOM

Barn owl
Barn swallow
Canada goose
Chaffinch
Common cuckoo
Common loon
Common murre
Corncrake
Dunnoek
Eurasian bittern
Eurasian dipper
Eurasian golden oriole
European roller
European starling
Gray wagtail
Great auk
Great cormorant
Great crested grebe
Great tit
House sparrow
Mallard
Manx shearwater
Mute swan
Northern gannet
Northern lapwing

Northern raven
Northern wryneck
Nuthatch
Osprey
Peregrine falcon
Puffin
Red crossbill
Red-throated loon
Rock pigeon
Ruddy turnstone
Snow bunting
Spotted flycatcher
Stonechat
Willow ptarmigan
Winter wren

UNITED STATES

American anhinga
American avocet
American cliff swallow
American dipper
American goldfinch
American mourning dove
American robin
American white pelican
Anna's hummingbird
Apapane
Arctic skua
Arctic warbler
Baltimore oriole
Barn owl
Barn swallow
Belted kingfisher
Bishop's oo
Black rail
Black tern
Black-and-white warbler
Black-capped chickadee
Black-capped vireo
Black-winged stilt
Blue jay
Blue-gray gnatcatcher
Brown creeper
Brown pelican
Bushtit

Cactus wren
California condor
Canada goose
Cattle egret
Cedar waxwing
Chimney swift
Common loon
Common murre
Crested caracara
Eastern bluebird
Eastern phoebe
Eastern screech-owl
European starling
Gray catbird
Great auk
Great blue heron
Great cormorant
Great kiskadee
Greater roadrunner
Gyr Falcon
Harris's hawk
Hawaiian honeycreepers
Horned lark
House sparrow
House wren
Ivory-billed woodpecker
Killdeer
King eider
Kirtland's warbler
Laysan albatross
Laysan finch
Limpkin
Loggerhead shrike
Long-billed curlew
Magnificent frigatebird
Mallard
Manx shearwater
Mute swan
Northern bobwhite quail
Northern fulmar
Northern gannet
Northern raven
Osprey
Peregrine falcon
Plain chachalaca
Puffin

Red crossbill
Red-breasted nuthatch
Red-cockaded woodpecker
Red-throated loon
Red-winged blackbird
Rock pigeon
Roseate spoonbill
Rose-throated becard
Ruddy turnstone
Sandhill crane
Savanna sparrow
Snow bunting
Song sparrow
Sprague's pipit
Verdin
Western grebe
Western scrub-jay
Whip-poor-will
White-tailed tropicbird
Wild turkey
Willow ptarmigan
Wilson's storm-petrel
Winter wren
Wood duck
Wood stork
Wrentit
Yellow-bellied sapsucker
Yellow-breasted chat

URUGUAY

American anhinga
American cliff swallow
Barn owl
Baywing
Black-winged stilt
Cattle egret
Crested caracara
Gray potoo
Great kiskadee
Greater thornbird
Harris's hawk
House sparrow
King vulture
Limpkin
Magellanic penguin
Manx shearwater

Peregrine falcon
Red-legged seriema
Rock pigeon
Roseate spoonbill
Ruddy turnstone
Rufous hornero
Wilson's storm-petrel
Wood stork

UZBEKISTAN

Barn swallow
Black-winged stilt
Chaffinch
Collared pratincole
Common cuckoo
Common myna
Crag martin
Egyptian vulture
Eurasian bittern
Eurasian dipper
Eurasian golden oriole
European bee-eater
European roller
European starling
Great bustard
Great cormorant
Great crested grebe
Great tit
Hoopoe
Horned lark
House sparrow
Mallard
Northern raven
Pallas's sandgrouse
Peregrine falcon
Rock pigeon

VENEZUELA

Amazonian umbrellabird
American anhinga
Baltimore oriole
Barn owl
Barn swallow
Barred antshrike
Belted kingfisher
Black tern

Black-and-white warbler
Black-capped donacobius
Black-winged stilt
Blue-black grassquit
Blue-crowned motmot
Brown pelican
Cattle egret
Common trumpeter
Crested caracara
Gray antbird
Gray potoo
Great kiskadee
Greater flamingo
Guianan cock-of-the-rock
Hairy hermit
Harris's hawk
Highland tinamou
Hoatzin
Horned screamer
King vulture
Limpkin
Magnificent frigatebird
Oilbird
Osprey
Peregrine falcon
Red-billed scythebill
Roseate spoonbill
Ruddy turnstone
Rufous-browed peppershrike
Rufous-tailed jacamar
Scarlet macaw
Sharpbill
Spangled cotinga
Sparkling violet-ear
Sunbittern
Sungrebe
White-necked puffbird
Wilson's storm-petrel
Wire-tailed manakin
Wood stork

VIETNAM

Arctic warbler
Asian fairy-bluebird
Australasian lark
Barn swallow

Baya weaver
 Black bulbul
 Black-and-red broadbill
 Black-crowned barwing
 Black-naped monarch
 Black-winged stilt
 Cattle egret
 Common cuckoo
 Common iora
 Common myna
 Coppersmith barbet
 Crag martin
 Crested tree swift
 Dollarbird
 Eurasian bittern
 Fire-breasted flowerpecker
 Gray nightjar
 Gray wagtail
 Great cormorant
 Great tit
 Greater painted snipe
 Greater racket-tailed drongo
 Green magpie
 Hoopoe
 Northern wryneck
 Orange-breasted trogon
 Osprey
 Peregrine falcon
 Pheasant-tailed jacana
 Purple sunbird
 Rock pigeon
 Ruby-cheeked sunbird
 Ruddy turnstone
 Saunder's gull
 Small buttonquail
 Spotted munia
 Stonechat
 White-throated fantail
 Zitting cisticola

YEMEN

African palm swift
 Cattle egret
 Crab plovers
 Crag martin
 Egyptian vulture

European roller
 Gray wagtail
 Greater hoopoe-lark
 Hammerhead
 Hoopoe
 House sparrow
 Osprey
 Peregrine falcon
 Rock pigeon
 Ruddy turnstone
 Stonechat
 Wilson's storm-petrel

YUGOSLAVIA

Common cuckoo
 Corncrake
 Crag martin
 Egyptian vulture
 Eurasian dipper
 European bee-eater
 European roller
 European white stork
 Gray wagtail
 Great cormorant
 Great crested grebe
 Hoopoe
 Horned lark
 Mallard
 Northern lapwing
 Peregrine falcon
 Rock pigeon
 Snow bunting
 Zitting cisticola

ZAMBIA

African broadbill
 African jacana
 African palm swift
 African paradise-flycatcher
 African pitta
 African snipe
 Bar-breasted mousebird
 Barn swallow
 Black-winged stilt
 Buff-spotted flufftail

Cattle egret
 Collared pratincole
 Common bulbul
 Common cuckoo
 Common waxbill
 Corncrake
 Eurasian golden oriole
 European bee-eater
 European roller
 European white stork
 Gray go-away-bird
 Gray-crowned crane
 Great cormorant
 Greater flamingo
 Greater painted snipe
 Green woodhoopoe
 Hammerhead
 Helmeted guineafowl
 Hoopoe
 House sparrow
 Osprey
 Ostrich
 Peregrine falcon
 Red-billed oxpecker
 Rosy-breasted longclaw
 Sacred ibis
 Secretary bird
 Shoebill
 Small buttonquail
 Southern ground-hornbill
 Southern red bishop
 Spotted flycatcher
 Square-tailed drongo
 Stonechat
 Village weaver
 White-helmet shrike
 Yellow-fronted tinkerbird
 Zitting cisticola

ZIMBABWE

African broadbill
 African palm swift
 African paradise-flycatcher
 African pitta
 African snipe
 Bar-breasted mousebird

Barn swallow
Black-winged stilt
Buff-spotted flufftail
Cape batis
Cattle egret
Collared pratincole
Common bulbul
Common cuckoo
Common waxbill
Corncrake
Eurasian golden oriole
European bee-eater
European roller
European white stork

Gray go-away-bird
Gray-crowned crane
Great cormorant
Greater painted snipe
Green woodhoopoe
Hammerhead
Helmeted guineafowl
Hoopoe
House sparrow
Osprey
Ostrich
Peregrine falcon
Red-billed oxpecker
Rock pigeon

Rosy-breasted longclaw
Sacred ibis
Secretary bird
Shoebill
Small buttonquail
Southern ground-hornbill
Southern red bishop
Spotted flycatcher
Stonechat
Village weaver
White-helmet shrike
Yellow-fronted tinkerbird
Zitting cisticola