

**Connecticut Siting Council
Docket No. 360**

INTERVENOR JAEGER'S HEARING EXHIBITS

The following is a list of the exhibits Intervenor Jaeger presently intends to present at the public hearing on Docket No. 360.

I. Exhibits Relating to Migratory Birds and Endangered Species

- | | |
|-------|---|
| IJ 1 | SUNY Study on Avian Brain Neurons, 2002. |
| IJ 2 | UCI Study on Migratory Birds, 2004. |
| IJ 3 | Ditto -- Full Text. |
| IJ 4 | Balmori Study on House Sparrows, 2003. |
| IJ 5 | Everaert and Bauwens Study on House Sparrows, 2007. |
| IJ 6 | Balmori Study of White Storks, 2005. |
| IJ 7 | Magras Study of Infertility in Mice, 1997. |
| IJ 8 | CGS Chapter 495, Endangered Species. |
| IJ 9 | DEP NDDB Map of Canaan, Connecticut, June, 2006. |
| IJ 10 | DEP NDDB Map Legend. |
| IJ 11 | Detail of NDDB Map Marked to Show Location of Proposed Tower. |
| IJ 12 | Nature Conservancy Northwest Highlands Information Sheet. |
| IJ 13 | DEP Instructions for NDDB Review Request. |
| IJ 14 | DEP List of Endangered Species, Litchfield County, May, 2006. |
| IJ 15 | DEP NDDB Letter of September 25, 2006. |

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I. Exhibits Relating to Migratory Birds and Endangered Species (continued)

- IJ 16 McNeely Report on Migratory and Nesting Birds within 2 Miles of Beebe Hill Cell Tower site, 9/06.
- IJ 17 Excerpts From DEP Atlas of Breeding Birds of Connecticut, 1994.
- IJ 18 DEP American Bittern Information Sheet, 12/99.
- IJ 19 DEP Pied-Billed Grebe Information Sheet, 1/00.
- IJ 20 DEP Barn Owl Information Sheet, 1/00.
- IJ 21 Alaska Department of Fish and Game Burbot Information Sheet, 1994.
- IJ 22 DEP Connecticut Wildlife article on Mud Puppies, 3-4/06 (p.7).
- IJ 23 DEP Bog Turtle Information Sheet, 12/99.
- IJ 24 Wisconsin Department of Natural Resources Wood Turtle Information Sheet, 2004.
- IJ 25 DEP Map 3 of Robbins Swamp WMA, 10/01.
- IJ 26 Balmori Study on Amphibians, 2005.
- IJ 27 New Jersey Blue-Spotted Salamander Information Sheet.
- IJ 28 DEP Threatened Northern Spring Salamander Information Sheet.
- IJ 29 DEP Map 5 of Housatonic State Forest.
- IJ 30 UCONN Report on "Most Significant Ecological Community in the State of Connecticut."
- IJ 31 Ditto – Full Text.
- IJ 32 Montana State U. Columbine Duskywing Information Sheet.
- IJ 33 Montana State U. Northern Metalmark Information Sheet.

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II. Exhibits Relating to Property Rights and Public Safety

- IJ 34 Austrian Study of Possible Health Effects Caused by Cell Tower Emissions, 2006.
- IJ 35 French Study of Possible Health Effects Caused by Cell Tower Emissions, 2003.
- IJ 36 German Study of Possible Health Effects Caused by Cell Tower Emissions, 2005.
- IJ 37 Netherlands Study of Possible Health Effects Caused by Cell Tower Emissions, 2003.
- IJ 38 Spanish Study of Possible Health Effects Caused by Cell Tower Emissions, 2003.
- IJ 39 Swedish Study of Increase of Malignant Melanomas, 2004.
- IJ 40 United Kingdom Department of Health Information Folders on Mobile Phones and Base Stations, 2000.
- IJ 41 International Association of Firefighters Resolution urging Study of Health Effects of Cell Towers, 2004.
- IJ 42 Studies of Biological Effects at Low Intensities (Compiled by Henri Lai, Bioelectromagnetics Research Laboratory, U. of Washington), 2005.
- IJ 43 International Commission for Electromagnetic Safety Benevento Resolution, 2006.
- IJ 44 London Times Article on Cancer Clusters at Phone Masts, 4/22/07.
- IJ 45 The BioInitiative Report, Section 1
- IJ 46 The BioInitiative Report, Section 17
- IJ 47 Pre filed testimony of Dina K. Jaeger
- IJ 48 Petition with signatures, submitted by Dina Jaeger on June 26, 2008.

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INTERVENOR JAEGER'S SUPPLEMENTAL HEARING EXHIBITS

- IJ 49 Migratory Bird Treaty Act Bird List, Bird Marked to Reflect Beebe Hill Sightings by John McNeely

- IJ 50 Migratory Bird Treaty Act Bird List, Marked to Reflect Beebe Hill Sightings by Luis Cabassa (174 Beebe Hill Road, Falls Village, CT)

- IJ 51 Briefing Paper on the Need for Research into the Cumulative Impacts of Communication Towers on Migratory Birds and Other Wildlife in the United States by the Division of Migratory Bird Management (DMBM), U.S. Fish & Wildlife Service. 8/13/07

- IJ 52 Decision of the U.S. Court of Appeals for the District of Columbia Circuit in American Bird Conservancy, Inc. and Forest Conservation Council, Petitioners, v. Federal Communications Commission, Respondent, CTIA - The Wireless Association, et al., Intervenors, Petition for Review of an Order of the Federal Communications Commission, [516 F.3d 1027], Decided 2/19/08.

- IJ 53 Federal Communications Commission Press Release: Statement of Commissioner Michael J. Copps in Response to the D.C. Circuit's Decision Vacating the FCC's Denial and Dismissal of the Gulf Coast Migratory Birds Petition, Released 2/20/08

- IJ 54 Federal Communications Commission Opening of Docket No. 08-61, In Response to American Bird Conservancy, Inc. v. FCC, 516 F.3d 1027 (D.C. Cir. 2008)

- IJ 55 Definition of Scenic Road Designation under Connecticut Public Act No. 87-280 of Connecticut Route 7 from Kent-New Milford, CT town line to Canaan-North Canaan town line, per ConnDOT press release of 1/25/02

- IJ 56 Certified Copy of the Minutes of Town Meeting - Kellogg School Auditorium - October 5, 2000

- IJ 57 Certified Copy of Quit Claim Deed, Vol. 60, Page 578

- IJ 58 Certified Copy of the Minutes of Regular Meeting of the Town of Canaan Fire Commission, Falls Village Connecticut, June 19, 2007

- IJ 59 Certified Copy of the Minutes of Regular Meeting of the Town of Canaan Fire Commission, Falls Village Connecticut, February 19, 2008

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- IJ 60 Certified Copy of Agenda of Special Board of Selectmen's Meeting,
Town of Canaan, Wednesday, April 23, 2008

- IJ 61 Certified Copy of Minutes of Special Board of Selectmen's Meeting,
Town of Canaan, Wednesday, April 23, 2008

- IJ 62 Certified Copy of Agenda of Special Board of Selectmen's Meeting, Town
of Canaan, Thursday, June 12, 2008

- IJ 63 Certified Copy of Minutes of Special Board of Selectmen's Meeting,
Town of Canaan, Thursday, June 12, 2008

- IJ 64 Certified Copy of Town of Canaan Municipal Budget, FY 2008-2009:
cover and pages 4, 7 and 8 [Insurance, Including CIRMA #1015; FVVFD
Pension #1016; Fire Commission #2001]

- IJ 65 Resolution No. 15 of IAFF opposing cell towers near fire stations until
proven safe.

- IJ 66 Town of Canaan Zoning Regulations, Preamble and Section 9.2

- IJ 67 Migratory Bird Treaty Act Bird List, Marked to Reflect Beebe Hill
Sightings by Charlie Knox

- IJ 68 Certified Copy of Town of Canaan Assessor Map 4

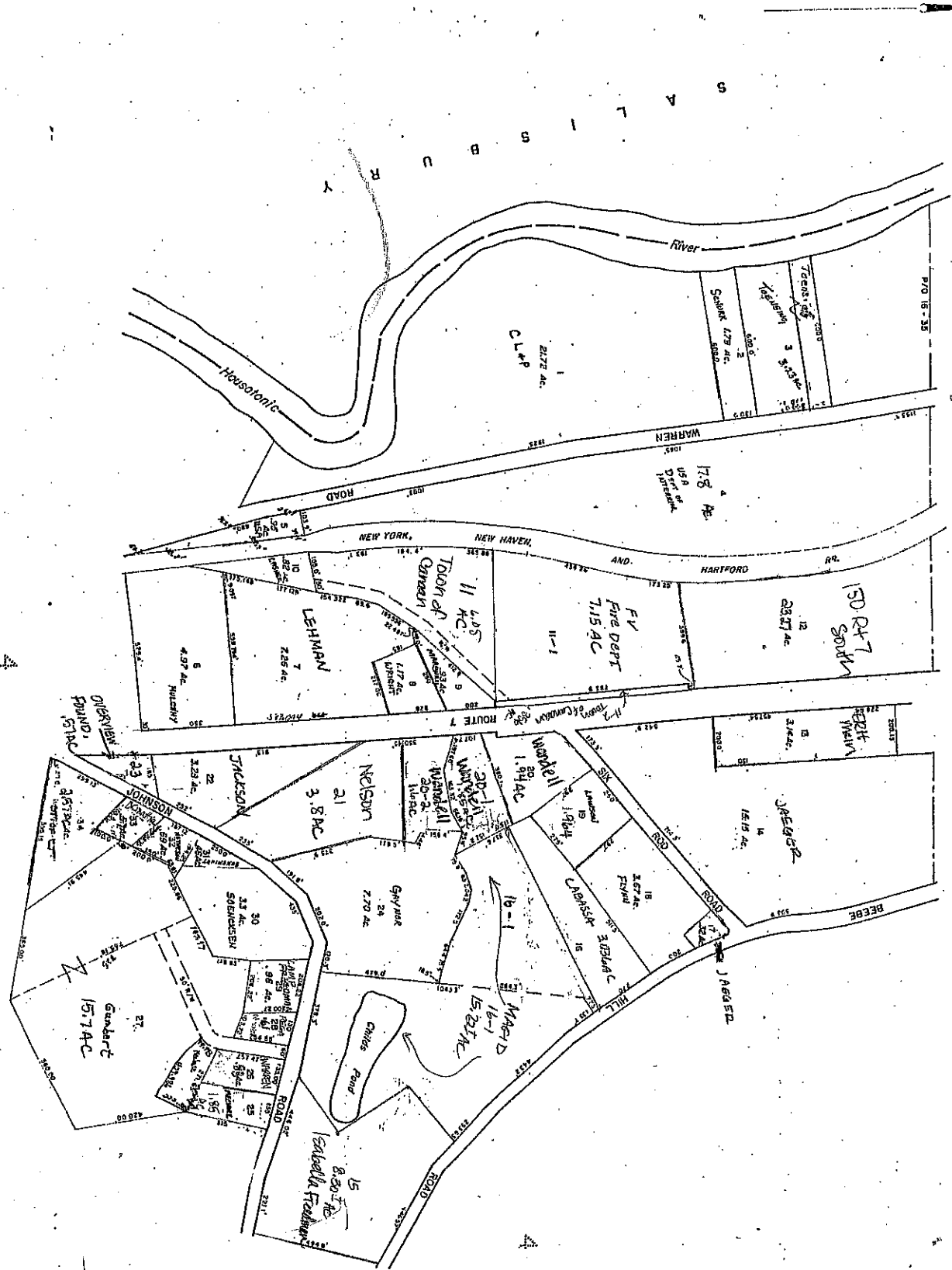
- IJ 69 Certified Copy of Town of Canaan Assessor Map 15

I CERTIFY THIS TO BE A TRUE COPY OF THE TOWN OF CANAAN ASSESSOR MAP 15.
 DATE: JUNE 30, 2008

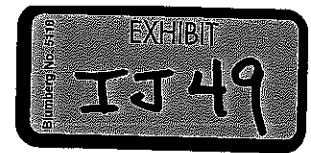
Mary M. Palmer
 MARY M. PALMER,
 TOWN CLERK
 (SEAL)

EXHIBIT
IJ 48
 Blumberg No. 5118

LEGEND
 PARCEL NUMBERS 2
 ADJACENT MAPS 7
 For Assessment Purposes



PROPERTY MAP
 TOWN OF CANAAN
 LITCHFIELD COUNTY, CONNECTICUT
 prepared by
 HAYDEN W. SMALL CIVIL ENGR. OLD TOWN, MAINE



BIRDS PROTECTED BY THE MIGRATORY BIRD TREATY ACT

List of Migratory Birds

This is an adaptation of the List of Migratory Birds that appears in Title 50 of the Code of Federal Regulations, Section 10.13. The major difference between this list and the "official" published list is that the scientific and common (English) names have been changed to conform to the most recent taxonomy (as reflected in the 1983 AOU Check-list and published supplements through 1995). In cases where a name in the following list differs from that in the CFR list, the name in the CFR list is cross-referenced in parentheses. EXAMPLES: in the CFR list, the Yellow Bittern is listed as Chinese Bittern and the scientific name of the Crested Caracara (*Caracara plancus*) is given as *Polyborus plancus*. The referenced species are the same in both lists, only the nomenclature has changed.

Alphabetical List

Taxonomic List

Alphabetical List

[A] [B] [C] [D] [E] [F] [G] [H] [I]
[J] [K] [L] [M] [N] [O] [P] [Q] [R] [S] [T] [U] [V] [W] [X] [Y] [Z]

Accentor, Siberian, *Prunella montanella*
Albatross, Black-footed, *Diomedea nigripes*
 Laysan, *Diomedea immutabilis*
 Short-tailed, *Diomedea albatrus*
 Yellow-nosed, *Diomedea chlororhynchos*
Anhinga, *Anhinga anhinga*
Ani, Groove-billed, *Crotophaga sulcirostris*
 Smooth-billed, *Crotophaga ani*
Auklet, Cassin's, *Ptychoramphus aleuticus*
 Crested, *Aethia cristatella*
 Least, *Aethia pusilla*
 Parakeet, *Cyclorhynchus psittaculus*
 Rhinoceros, *Cerorhinca monocerata*
 Whiskered, *Aethia pygmaea*
Avocet, American, *Recurvirostra americana*

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Barn-Owl, Common (see Owl, Barn)
Beardless-Tyrannulet, Northern, *Camptostoma imberbe*
Becard, Rose-throated, *Pachyramphus aglaiae*
✓ Bittern, American, *Botaurus lentiginosus*
 Chinese (see Bittern, Yellow)
 ✓ Least, *Ixobrychus exilis*

Yellow (=Chinese), *Ixobrychus sinensis*
 Schrenk's, *Ixobrychus eurhythmus*
 Black-Hawk, Common, *Buteogallus anthracinus*
 Blackbird, Brewer's, *Euphagus cyanocephalus*
 ✓ Red-winged, *Agelaius phoeniceus*
 Rusty, *Euphagus carolinus*
 Tawny-shouldered, *Agelaius humeralis*
 Tricolored, *Agelaius tricolor*
 Yellow-headed, *Xanthocephalus xanthocephalus*
 Yellow-shouldered, *Agelaius xanthomus*
 ✓ Bluebird, Eastern, *Sialia sialis*
 Mountain, *Sialia currucoides*
 Western, *Sialia mexicana*
 Bluethroat, *Luscinia svecica*
 Bobolink, *Dolichonyx oryzivorus*
 Booby, Blue-footed, *Sula nebouxii*
 Brown, *Sula leucogaster*
 Masked, *Sula dactylatra*
 Red-footed, *Sula sula*
 Brambling, *Fringilla montifringilla*
 Brant, *Branta bernicla*
 ✓ Bufflehead, *Bucephala albeola*
 Bullfinch, Eurasian, *Pyrrhula pyrrhula*
 Puerto Rican, *Loxigilla portoricensis*
 ✓ Bunting, Indigo, *Passerina cyanea*
 Lark, *Calamospiza melanocorys*
 Lazuli, *Passerina amoena*
 McKay's, *Plectrophenax hyperboreus*
 Painted, *Passerina ciris*
 Pallas' (=Reed-bunting, Pallas'), *Emberiza pallasi*
 Reed, (=Reed-Bunting, Common), *Emberiza schoeniculus*
 Rustic, *Emberiza rustica*
 ✓ Snow, *Plectrophenax nivalis*
 Varied, *Passerina versicolor*
 Bushtit, *Psaltriparus minimus*

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✓ Canvasback, *Aythya valisneria*
 Caracara, Crested, *Caracara (=Polyborus) plancus*
 Cardinal, Northern, *Cardinalis cardinalis*
 ✓ Carib, Green-throated, *Eulampis holosericeus*
 ✓ Catbird, Gray, *Dumetella carolinensis*
 Chat, Yellow-breasted, *Icteria virens*
 Chickadee, Black-capped, *Parus atricapillus*
 Boreal, *Parus hudsonicus*
 Carolina, *Parus carolinensis*
 Chestnut-backed, *Parus rufescens*
 Mexican, *Parus sclateri*
 Mountain, *Parus gambeli*
 Chuck-will's-widow, *Caprimulgus carolinensis*
 Condor, California, *Gymnogyps californianus*
 ✓ Coot, American, *Fulica americana*
 Caribbean, *Fulica caribaea*
 Eurasian, *Fulica atra*
 Hawaiian (=American), *Fulica alai (=americana)*
 Cormorant, Brandt's, *Phalacrocorax penicillatus*
 ✓ Double-crested, *Phalacrocorax auritus*
 Great, *Phalacrocorax carbo*
 Neotropical (=Olivaceous), *Phalacrocorax brasilianus (=olivaceous)*
 Olivaceous (see Cormorant, Neotropical)
 Pelagic, *Phalacrocorax pelagicus*
 Red-faced, *Phalacrocorax urile*

- ✓ Cowbird, Bronzed, *Molothrus aeneus*
- Brown-headed, *Molothrus ater*
- Shiny, *Molothrus bonariensis*
- Crake, Corn, *Crex crex*
- Yellow-breasted, *Porzana flaviventer*
- Crane, Common, *Grus grus*
- Sandhill, *Grus canadensis*
- Whooping, *Grus americana*
- ✓ Creeper, Brown, *Certhia americana*
- ✓ Crossbill, Red, *Loxia curvirostra*
- ✓ White-winged, *Loxia leucoptera*
- ✓ Crow, American, *Corvus brachyrhynchos*
- Fish, *Corvus ossifragus*
- Hawaiian, *Corvus hawaiiensis*
- Mexican, *Corvus imparatus*
- Northwestern, *Corvus caurinus*
- White-necked, *Corvus leucognaphalus*
- ✓ Cuckoo, Black-billed, *Coccyzus erythrophthalmus*
- Common, *Cuculus canorus*
- Mangrove, *Coccyzus minor*
- Oriental, *Cuculus saturatus*
- ✓ Yellow-billed, *Coccyzus americanus*
- Curlew, Bristle-thighed, *Numenius tahitiensis*
- Eskimo, *Numenius borealis*
- Far Eastern, *Numenius madagascariensis*
- Least (see Curlew, Little)
- Little (=Least), *Numenius minutus*
- Long-billed, *Numenius americanus*

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- Dickcissel, *Spiza americana*
- Dipper, American, *Cinclus mexicanus*
- Dotterel, Eurasian, *Charadrius morinellus*
- Dove, Inca, *Columbina inca*
- ✓ Mourning, *Zenaida macroura*
- White-tipped, *Leptotila verreauxi*
- White-winged, *Zenaida asiatica*
- Zenaida, *Zenaida aurita*
- Dovekie, *Alle alle*
- / Dowitcher, Long-billed, *Limnodromus scolopaceus*
- ✓ Short-billed, *Limnodromus griseus*
- / Duck, American Black, *Anas rubripes*
- Harlequin, *Histrionicus histrionicus*
- Hawaiian, *Anas wyvilliana*
- Laysan, *Anas laysanensis*
- Masked, *Oxyura dominica*
- Mottled, *Anas fulvigula*
- ✓ Ring-necked, *Aythya collaris*
- ✓ Ruddy, *Oxyura jamaicensis*
- Tufted, *Aythya fuligula*
- ✓ Wood, *Aix sponsa*
- / Dunlin, *Calidris alpina*

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- / Eagle, Bald, *Haliaeetus leucocephalus*
- ✓ Golden, *Aquila chrysaetos*
- White-tailed, *Haliaeetus albicilla*
- / Egret, Cattle, *Bubulcus ibis*
- Chinese, *Egretta eulophotes*
- Great, *Ardea* (=Casmerodius) *alba* (=albus)
- Intermediate (=Plumed), *Mesophoyx* (=Egretta) *intermedia*
- Plumed (see Egret, Intermediate)

Reddish, *Egretta rufescens*
Snowy, *Egretta thula*
Eider, Common, *Somateria mollissima*
King, *Somateria spectabilis*
Spectacled, *Somateria fischeri*
Steller's, *Polysticta stelleri*
Elaenia, Caribbean, *Elaenia martinica*
Emerald, Puerto Rican, *Chlorostilbon maugaeus*
Euphonia, Antillean, *Euphonia musica*

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Falcon, Aplomado, *Falco femoralis*
✓ Peregrine, *Falco peregrinus*
Prairie, *Falco mexicanus*
Fieldfare, *Turdus pilaris*
Finch, Cassin's, *Carpodacus cassinii*
House, *Carpodacus mexicanus*
✓ Purple, *Carpodacus purpureus*
Rosy (see Rosy-Finch, Black; Rosy-Finch, Brown-capped; and Rosy-Finch, Gray-crowned)
Flamingo, Greater, *Phoenicopterus ruber*
Flicker, Gilded (=Northern), *Colaptes chrysoides (=auratus)*
✓ Northern, *Colaptes auratus*
✓ Flycatcher, Acadian, *Empidonax virescens*
✓ Alder, *Empidonax alnorum*
Ash-throated, *Myiarchus cinerascens*
Brown-crested, *Myiarchus tyrannulus*
Buff-breasted, *Empidonax fulvifrons*
Cordilleran (=Western), *Empidonax occidentalis (=difficilis)*
Dusky, *Empidonax oberholseri*
Dusky-capped, *Myiarchus tuberculifer*
Fork-tailed, *Tyrannus savana*
Gray, *Empidonax wrightii*
Gray-spotted, *Muscicapa griseisticta*
✓ Great Crested, *Myiarchus crinitus*
Hammond's, *Empidonax hammondii*
✓ Least, *Empidonax minimus*
Narcissus, *Muscicapa narcissina*
Nutting's, *Myiarchus nuttingi*
✓ Olive-sided, *Contopus borealis*
Pacific-slope (=Western), *Empidonax difficilis*
Puerto Rican, *Myiarchus antillarum*
Scissor-tailed, *Tyrannus forficatus*
Sulphur-bellied, *Myiodynastes luteiventris*
Vermilion, *Pyrocephalus rubinus*
Western (see Flycatcher, Cordilleran; and Flycatcher, Pacific-slope)
✓ Willow, *Empidonax traillii*
✓ Yellow-bellied, *Empidonax flaviventris*
Frigatebird, Great, *Fregata minor*
Lesser, *Fregata ariel*
Magnificent, *Fregata magnificens*
Fulmar, Northern, *Fulmarus glacialis*

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✓ Gadwall, *Anas strepera*
Gallinule, Purple, *Porphyryla martinica*
Gannet (see Gannet, Northern)
Northern (=Gannet), *Morus (=Sula) bassanus*
Garganey, *Anas querquedula*
Gnatcatcher, Black-capped, *Polioptila nigriceps*
Black-tailed, *Polioptila melanura*
✓ Blue-gray, *Polioptila caerulea*

- California (=Black-tailed), *Polioptila californica* (=melanura)
- Godwit, Bar-tailed, *Limosa lapponica*
- Black-tailed, *Limosa limosa*
- ✓ Hudsonian, *Limosa haemastica*
- Marbled, *Limosa fedoa*
- Golden-Plover, American (=Lesser), *Pluvialis dominicus* (=dominica)
- Lesser (see Golden-Plover, American; and Golden-Plover, Pacific)
- Pacific (=Lesser), *Pluvialis fulva* (=dominica)
- Goldeneye, Barrow's, *Bucephala islandica*
- ✓ Common, *Bucephala clangula*
- ✓ Goldfinch, American, *Carduelis tristis*
- Lawrence's, *Carduelis lawrencei*
- Lesser, *Carduelis psaltria*
- Goose, Barnacle, *Branta leucopsis*
- Bean, *Anser fabalis*
- ✓ Canada, *Branta canadensis*
- Emperor, *Chen canagica*
- Greater White-fronted, *Anser albifrons*
- Hawaiian, *Branta* (=Nesochen) *sandvicensis* Ross', *Chen rossii*
- ✓ Snow, *Chen caerulescens*
- ✓ Goshawk, Northern, *Accipiter gentilis*
- ✓ Grackle, Boat-tailed, *Quiscalus major*
- Common, *Quiscalus quiscula*
- Great-tailed, *Quiscalus mexicanus*
- Greater Antillean, *Quiscalus niger*
- Grasshopper-Warbler, Middendorff's, *Locustella ochotensis*
- Grassquit, Black-faced, *Tiaris bicolor*
- Yellow-faced, *Tiaris olivacea*
- Grebe, Clark's (=Western), *Aechmophorus clarkii* (=occidentalis)
- Eared, *Podiceps nigricollis*
- ✓ Horned, *Podiceps auritus*
- Least, *Tachybaptus dominicus*
- ✓ Pied-billed, *Podilymbus podiceps*
- Red-necked, *Podiceps grisegena*
- Western, *Aechmophorus occidentalis*
- Greenfinch, Oriental, *Carduelis sinica*
- Greenshank, Common, *Tringa nebularia*
- Grosbeak, Black-headed, *Pheucticus malanocephalus*
- Blue, *Guiraca caerulea*
- Crimson-collared, *Rhodothraupis celaeno*
- ✓ Evening, *Coccothraustes vespertinus*
- ✓ Pine, *Pinicola enucleator*
- ✓ Rose-breasted, *Pheucticus ludovicianus*
- Yellow, *Pheucticus chrysopheplus*
- Ground-Dove, Common, *Zenaida passerina*
- Ruddy, *Zenaida talpacoti*
- Guillemot, Black, *Cepphus grylle*
- Pigeon, *Cepphus columba*
- Gull, Black-headed (=Common Black-headed), *Larus ridibundus*
- ✓ Bonaparte's, *Larus philadelphia*
- California, *Larus californicus*
- Common Black-headed (see Gull, Black-headed)
- Franklin's, *Larus pipixcan*
- Glaucous, *Larus hyperboreus*
- Glaucous-winged, *Larus glaucescens*
- ✓ Great Black-backed, *Larus marinus*
- Heermann's, *Larus heermanni*
- ✓ Herring, *Larus argentatus*
- Iceland, *Larus glaucoides*
- Ivory, *Pagophila eburnea*
- Laughing, *Larus atricilla*
- Lesser Black-headed, *Larus fuscus*
- Little, *Larus minutus*
- Mew, *Larus canus*
- ✓ Ring-billed, *Larus delawarensis*

Ross', *Rhodostethia rosea*
Sabine's, *Xema sabini*
Slaty-backed, *Larus schistisagus*
Thayer's, *Larus thayeri*
Western, *Larus occidentalis*
Yellow-footed, *Larus livens*
Gyrfalcon, *Falco rusticolus*

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✓ Harrier, Northern, *Circus cyaneus*
Hawfinch, *Coccothraustes coccothraustes*
Hawk, Asiatic Sparrow, *Accipiter gularis*
✓ Broad-winged, *Buteo platypterus*
✓ Cooper's, *Accipiter cooperii*
Ferruginous, *Buteo regalis*
Gray, *Buteo nitidus*
Harris', *Parabuteo unicinctus*
Hawaiian, *Buteo solitarius*
✓ Red-shouldered, *Buteo lineatus*
✓ Red-tailed, *Buteo jamaicensis*
✓ Rough-legged, *Buteo lagopus*
✓ Sharp-shinned, *Accipiter striatus*
Short-tailed, *Buteo brachyurus*
Swainson's, *Buteo swainsoni*
White-tailed, *Buteo albicaudatus*
Zone-tailed, *Buteo albonotatus*
Hawk-Cuckoo, Hodgson's, *Cuculus fugax*
Hawk-Owl, Northern (see Owl, Hawk)
✓ Heron, Great Blue, *Ardea herodias*
✓ Green (=Green-backed), *Butorides virescens (=striatus)*
Green-backed (see Heron, Green)
Little Blue, *Ardea caerulea*
✓ Night (see Night-Heron)
Pacific Reef, *Ardea sacra*
Tricolored, *Ardea tricolor*
Hoopoe, *Upupa epops*
House-Martin, Common, *Delichon urbica*
Hummingbird, Allen's, *Selasphorus sasin*
Anna's, *Calypte anna*
Antillean Crested, *Orthorhynchus cristatus*
Berylline, *Amazilia beryllina*
Black-chinned, *Archilochus alexandri*
Blue-throated, *Lampornis clemenciae*
Broad-billed, *Cyananthus latirostris*
Broad-tailed, *Selasphorus platycercus*
Buff-bellied, *Amazilia yucatanensis*
Calliope, *Stellula calliope*
Costa's, *Calypte costae*
Lucifer, *Calothorax lucifer*
Magnificent, *Eugenes fulgens*
✓ Ruby-throated, *Archilochus colubris*
Rufous, *Selasphorus rufus*
Violet-crowned, *Amazilia violiceps*
White-eared, *Hylocharis leucotis*

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Ibis, Glossy, *Plegadis falcinellus*
Scarlet, *Eudocimus ruber*
White, *Eudocimus albus*
White-faced, *Plegadis chihi*

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Jabiru, Jabiru mycteria
Jacana, Northern, Jacana spinosa
Jaeger, Long-tailed, Stercorarius longicaudus
Parasitic, Stercorarius parasiticus
Pomarine, Stercorarius pomarinus
Jay, Blue, Cyanocitta cristata
Brown, Cyanocorax morio
Gray, Perisoreus canadensis
Gray-Breasted (see Jay, Mexican)
Green, Cyanocorax yncas
Mexican (=Gray-breasted), Aphelocoma ultramarina
Pinyon, Gymnorhinus cyanocephalus
Scrub (see Scrub-Jay, Florida; Scrub-Jay, Island; and Scrub-Jay,
Western)
Steller's, Cyanocitta stelleri
✓ Junco, Dark-eyed, Junco hyemalis
Yellow-eyed, Junco phaeonotus

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Kamao (=Thrush, Hawaiian), Myadestes (=Phaeornis) myadestinus
(=obscurus)
✓ Kestrel, American, Falco sparverius *
Eurasian, Falco tinnunculus
✓ Killdeer, Charadrius vociferus
Kingbird, Cassin's, Tyrannus vociferans
Couch's, Tyrannus couchii
✓ Eastern, Tyrannus tyrannus
Gray, Tyrannus dominicensis
Loggerhead, Tyrannus caudifasciatus
Thick-billed, Tyrannus crassirostris
Tropical, Tyrannus melancholicus
Western, Tyrannus verticalis
✓ Kingfisher, Belted, Ceryle alcyon
Green, Chloroceryle americana
Ringed, Ceryle torquata
✓ Kinglet, Golden-crowned, Regulus satrapa
✓ Ruby-crowned, Regulus calendula
Kiskadee, Great, Pitangus sulphuratus
Kite, American Swallow-tailed (see Kite, Swallow-tailed)
Black, Milvus migrans
Black-shouldered (see Kite, White-tailed)
Hook-billed, Chondrohierax uncinatus
Mississippi, Ictinia mississippiensis
Snail, Rostrhamus sociabilis
Swallow-tailed, Elanoides forficatus
White-tailed (=Black-shouldered), Elanus leucurus (=caeruleus)
Kittiwake, Black-legged, Rissa tridactyla
Red-legged, Rissa brevirostris
Knot, Great, Calidris tenuirostris
Red, Calidris canutus

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Lapwing, Northern, Vanellus vanellus
✓ Lark, Horned, Eremophila alpestris
Sky (=Skylark, Eurasian), Alauda arvensis
Limpkin, Aramus guarana
Lizard-Cuckoo, Puerto Rican, Saurothera vieillotii
Longspur, Chestnut-collared, Calcarius ornatus
✓ Lapland, Calcarius lapponicus

McCown's, *Calcarius mccownii*
Smith's, *Calcarius pictus*
Loon, Arctic, *Gavia arctica*
✓ Common, *Gavia immer*
Pacific (=Arctic), *Gavia pacifica* (=arctica)
✓ Red-throated, *Gavia stellata*
Yellow-billed, *Gavia adamsii*

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Magpie, Black-billed, *Pica pica*
Yellow-billed, *Pica nuttalli*
Mallard, *Anas platyrhynchos*
Mango, Antillean, *Anthracothorax dominicus*
Green, *Anthracothorax viridis*
Martin, Caribbean, *Progne dominicensis*
Cuban, *Progne cryptoleuca*
Gray-breasted, *Progne chalybea*
✓ Purple, *Progne subis*
✓ Meadowlark, Eastern, *Sturnella magna*
Western, *Sturnella neglecta*
✓ Merganser, Common, *Mergus merganser*
✓ Hooded, *Lophodytes cucullatus*
✓ Red-breasted, *Mergus serrator*
✓ Merlin, *Falco columbarius*
Mockingbird, Northern, *Mimus polyglottos*
✓ Moorhen, Common, *Gallinula chloropus*
Murre, Common, *Uria aalge*
Thick-billed, *Uria lomvia*
Murrelet, Ancient, *Synthliboramphus antiquus*
Craveri's, *Synthliboramphus craveri*
Kittlitz's, *Brachyramphus brevirostris*
Marbled, *Brachyramphus marmoratus*
Xantus', *Synthliboramphus hypoleucus*

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Needletail, White-throated, *Hirundapus caudacutus*
✓ Night-Heron, Black-crowned, *Nycticorax nycticorax*
Japanese, *Nycticorax goisagi*
Malay, *Nycticorax melanolophus*
Yellow-crowned, *Nyctanassa* (=Nycticorax) *violacea* (=violaceus)
Nighthawk, Antillean, *Chordeiles gundlachii*
✓ Common, *Chordeiles minor*
Lesser, *Chordeiles acutipennis*
Nightjar, Buff-collared, *Caprimulgus ridgwayi*
Puerto Rican, *Caprimulgus noctitherus*
Jungle, *Caprimulgus indicus*
Noddy, Black, *Anous minutus*
Blue-gray, *Procelsterna cerulea*
Brown, *Anous stolidus*
Lesser, *Anous tenuirostris*
Nutcracker, Clark's, *Nucifraga columbiana*
Nuthatch, Brown-headed, *Sitta pusilla*
Pygmy, *Sitta pygmaea*
Red-breasted, *Sitta canadensis*
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Oldsquaw, *Clangula hyemalis*
Olomao (=Thrush, Hawaiian), *Myadestes* (=Phaeornis) *lanaiensis* (=obscurus)

Omas (=Thrush, Hawaiian), *Myadestes* (=Phaeornis) *obscurus*
 Oriole, Altamira, *Icterus gularis*
 Audubon's, *Icterus graduacauda*
 ✓ Baltimore (=Northern), *Icterus galbula*
 Black-cowled, *Icterus dominicensis*
 Black-vented, *Icterus wagleri*
 Bullock's (=Northern), *Icterus bullockii* (=galbula)
 Hooded, *Icterus cucullatus*
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 ✓ Orchard, *Icterus spurius*
 Scott's, *Icterus parisorum*
 Streak-backed, *Icterus pustulatus*
 ✓ Osprey, *Pandion haliaetus*
 ✓ Ovenbird, *Seiurus aurocapillus*
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 Barred, *Strix varia*
 Boreal, *Aegolius funereus*
 Burrowing, *Speotyto* (=Athene) *cunicularia*
 Elf, *Micrathene whitneyi*
 Flammulated, *Otus flammeolus*
 Great Gray, *Strix nebulosa*
 Great Horned, *Bubo virginianus*
 Hawk (=Hawk-Owl, Northern), *Surnia ulula*
 ✓ Long-eared, *Asio otus*
 Northern Saw-whet, *Aegolius acadicus*
 ✓ Short-eared, *Asio flammeus*
 Snowy, *Nyctea scandiaca*
 Spotted, *Strix occidentalis*
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✓ Parula, Northern, *Parula americana*
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 Bonin, *Pterodroma hypoleuca*
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 Cook's, *Pterodroma cookii*
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 Herald, *Pterodroma arminjoniana*
 Juan Fernandez (=White-necked), *Pterodroma externa*
 Kermadec, *Pterodroma neglecta*
 Mottled, *Pterodroma inexpectata*
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 Pewee, Greater, *Contopus pertinax*
 Lesser Antillean, *Contopus latirostris*
 Phainopepla, *Phainopepla nitens*
 Phalarope, Red, *Phalaropus fulicaria*
 Red-necked, *Phalaropus lobatus*
 Wilson's, *Phalaropus tricolor*
 Phoebe, Black, *Sayornis nigricans*
 ✓ Eastern, *Sayornis phoebe*
 Say's, *Sayornis saya*
 Pigeon, Band-tailed, *Columba fasciata*
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 Scaly-naped, *Columba squamosa*
 White-crowned, *Columba leucocephala*
 / Pintail, Northern, *Anas acuta*

White-cheeked, *Anas bahamensis*

- ✓ Pipit, American (=Water), *Anthus rubescens* (=spinoletta)
- Olive-backed (=Tree-Pipit, Olive), *Anthus hodgsoni*
- Pechora, *Anthus gustavi*
- Red-throated, *Anthus cervinus*
- Sprague's, *Anthus spragueii*
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- Plover, Black-bellied, *Pluvialis squatarola*
- Common Ringed, *Charadrius hiaticula*
 - Great Sand, *Charadrius leschensultii*
 - Little Ringed, *Charadrius dubius*
 - Mongolian, *Charadrius mongolus*
 - Mountain, *Charadrius montanus*
 - Piping, *Charadrius melodus*

- ✓ Semipalmated, *Charadrius semipalmatus*
- Snowy, *Charadrius alexandrinus*
- Wilson's, *Charadrius wilsonia*

- Pochard, Baer's, *Aythya baeri*
- Common, *Aythya ferina*

Poorwill, Common, *Phalaenoptilus nuttallii*

Puaiohi (=Thrush, Small Kauai), *Myadestes* (=Phaeornis) *palmeri*

- Puffin, Atlantic, *Fratercula arctica*
- Horned, *Fratercula corniculata*
 - Tufted, *Fratercula cirrhata*

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- Northern, *Glaucidium gnoma*

Pyrrhuloxia, *Cardinalis sinuatus*

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Quail-Dove, Bridled, *Geotrygon mystacea*

- Key West, *Geotrygon chrysia*

- Ruddy, *Geotrygon montana*

Rail, Black, *Laterallus jamaicensis*

- Clapper, *Rallus longirostris*

- King, *Rallus elegans*

- ✓ Virginia, *Rallus limicola*

- ✓ Yellow, *Coturnicops noveboracensis*

Raven, Chihuahuan, *Corvus cryptoleucus*

- Common, *Corvus corax*

Razorbill, *Alca torda*

Redhead, *Aythya americana*

- ✓ Redpoll, Common, *Carduelis flammea*

- Hoary, *Carduelis hornemanni*

Redshank, Spotted, *Tringa erythropus*

- ✓ Redstart, American, *Setophaga ruticilla*

- Painted, *Myioborus pictus*

- Slate-throated, *Myioborus miniatus*

Reed-Bunting, Common (see Bunting, Common)

- Pallas' (see Bunting, Pallas')

Roadrunner, Greater, *Geococcyx californianus*

- ✓ Robin, American, *Turdus migratorius*

- Clay-colored, *Turdus grayi*

- Rufous-backed, *Turdus rufopalliatus*

Rosefinch, Common, *Carpodacus erythrinus*

Rosy-Finch (=Finch), Black (=Rosy), *Leucosticte atrata* (=arctoa)

- Brown-capped (=Rosy), *Leucosticte australis* (=arctoa)

- Gray-crowned (=Rosy), *Leucosticte tephrocotis* (=arctoa)

Rough-winged Swallow, Northern, *Stelgidopteryx serripennis*

Rubythroat, Siberian, *Luscinia calliope*

Ruff, *Philomachus pugnax*

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Sanderling, *Calidris alba*

Sandpiper, Baird's, *Calidris bairdii*

Broad-billed, *Limicola falcinellus*

Buff-breasted, *Tryngites subruficollis*

Common, *Actitis hypoleucos*

Curlew, *Calidris ferruginea*

✓ Least, *Calidris minutilla*

Marsh, *Tringa stagnatilis*

✓ Pectoral, *Calidris melanotos*

Purple, *Calidris maritima*

Rock, *Calidris ptilocnemis*

✓ Semipalmated, *Calidris pusilla*

Sharp-tailed, *Calidris acuminata*

✓ Solitary, *Tringa solitaria*

Spoonbill, *Eurynorhynchus pygmeus*

✓ Spotted, *Actitis macularia*

✓ Stilt, *Calidris himantopus*

Terek, *Xenus cinereus*

✓ Upland, *Bartramia longicauda*

Western, *Calidris mauri*

✓ White-rumped, *Calidris fuscicollis*

Wood, *Tringa glareola*

Sapsucker, Red-breasted, *Sphyrapicus ruber*

Red-naped (=Yellow-bellied), *Sphyrapicus nuchalis* (=varius)

Williamson's, *Sphyrapicus thyroideus*

✓ Yellow-bellied, *Sphyrapicus varius*

✓ Scaup, Greater, *Aythya marila*

✓ Lesser, *Aythya affinis*

Scoter, Black, *Melanitta nigra*

Surf, *Melanitta perspicillata*

White-winged, *Melanitta fusca*

Screech-Owl, Eastern, *Otus asio*

Puerto Rican, *Otus nudipes*

Western, *Otus kennicottii*

Whiskered, *Otus trichopsis*

Scrub-Jay (=Jay), Florida (=Scrub), *Aphelocoma coerulescens*

Island (=Scrub), *Aphelocoma insularius* (=coerulescens)

Western (=Scrub), *Aphelocoma californica* (=coerulescens)

Sea-Eagle, Steller's, *Haliaeetus pelagicus*

Seed-eater, White-collared, *Sporophila torqueola*

Shearwater, Audubon's, *Puffinus lherminieri*

Black-vented, *Puffinus opisthomelas*

Buller's, *Puffinus bulleri*

Christmas, *Puffinus nativitatis*

Cory's, *Bulweria diomedea*

Flesh-footed, *Puffinus carneipes*

Greater, *Puffinus gravis*

Little, *Puffinus assimilis*

Manx, *Puffinus puffinus*

Pink-footed, *Puffinus creatopus*

Short-tailed, *Puffinus tenuirostris*

Sooty, *Puffinus griseus*

Townsend's, *Puffinus auricularis*

Wedge-tailed, *Puffinus pacificus*

/ Shoveler, Northern, *Anas clypeata*

Shrike, Loggerhead, *Lanius ludovicianus*

✓ Northern, *Lanius excubitor*

/ Siskin, Pine, *Carduelis pinus*

Skimmer, Black, *Rhynchops niger*

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Jack, *Lymnocyptes minimus*
Pin-tailed, *Gallinago stenura*
Swinhoe's, *Gallinago megala*

Solitaire, Townsend's, *Myadestes townsendi*

✓ Sora, *Porzana carolina*

✓ Sparrow, American Tree, *Spizella arborea*

Bachman's, *Aimophila aestivalis*

Baird's, *Ammodramus bairdii*

Black-chinned, *Spizella atrogularis*

Black-throated, *Amphispiza bilineata*

Botteri's, *Aimophila botterii*

Brewer's, *Spizella breweri*

Cassin's, *Aimophila cassinii*

✓ Chipping, *Spizella passerina*

Clay-colored, *Spizella pallida*

✓ Field, *Spizella pusilla*

Five-striped, *Amphispiza quinquestriata*

✓ Fox, *Passerella iliaca*

Golden-crowned, *Zonotrichia atricapilla*

✓ Grasshopper, *Ammodramus savannarum*

Harris', *Zonotrichia querula*

Henslow's, *Ammodramus henslowii*

Lark, *Chondestes grammacus*

Le Conte's, *Ammodramus leconteii*

✓ Lincoln's, *Melospiza lincolni*

Nelson's Sharp-tailed (=Sharp-tailed), *Ammodramus nelsoni* (=caudacutus)

Olive, *Arremonops rufivirgatus*

Rufous-crowned, *Aimophila ruficeps*

Rufous-winged, *Aimophila carpalis*

Sage, *Amphispiza belli*

✓ Savannah, *Passerculus sandwichensis*

Seaside, *Ammodramus maritimus*

Saltmarsh Sharp-tailed (=Sharp-tailed), *Ammodramus caudacutus*

✓ Sharp-tailed (see Sparrow, Nelson's Sharp-tailed; and Sparrow,
Saltmarsh Sharp-tailed)

✓ Song, *Melospiza melodia*

✓ Swamp, *Melospiza georgiana*

✓ Vesper, *Poocetes gramineus*

✓ White-crowned, *Zonotrichia leucophrys*

✓ White-throated, *Zonotrichia albicollis*

Worthen's, *Spizella wortheni*

Spoonbill, Roseate, *Ajaia ajaja*

Starling, Ashy, *Sturnus cineraceus*

Violet-backed, *Sturnus philippensis*

Starthroat, Plain-capped, *Heliomaster constantii*

Stilt, Black-necked, *Himantopus mexicanus*

Stint, Little, *Calidris minuta*

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Red-necked (=Rufous-necked), *Calidris ruficollis*

Temminck's, *Calidris temminckii*

Stork, Wood, *Mycteria americana*

Storm-Petrel, Ashy, *Oceanodroma homochroa*

Band-rumped, *Oceanodroma castro*

Black, *Oceanodroma melania*

Fork-tailed, *Oceanodroma furcata*

Leach's, *Oceanodroma leucorhoa*

Least, *Oceanodroma microsoma*

Sooty (see Storm-Petrel, Tristram's)

Tristram's (=Sooty), *Oceanodroma tristrami*

Wedge-rumped, *Oceanodroma tethys*

White-faced, *Pelagodroma marina*

Wilson's, *Oceanites oceanicus*

Surfbird, *Aphriza virgata*

Swallow, Bahama, *Tachycineta cyaneoviridis*

✓ Bank, *Riparia riparia*

- ✓ Barn, *Hirundo rustica*
- Cave, *Hirundo fulva*
- ✓ Cliff, *Hirundo pyrrhonota*
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- ✓ Tree, *Tachycineta bicolor*
- Violet-green, *Tachycineta thalassina*
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- Tundra, *Cygnus columbianus*
- Whooper, *Cygnus cygnus*
- Swift, Antillean Palm, *Tachornis phoenicobia*
- Black, *Crypseloides niger*
- ✓ Chimney, *Chaetura pelagica*
- Common, *Apus apus*
- Fork-tailed, *Apus pacificus*
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- Summer, *Piranga rubra*
- Western, *Piranga ludoviciana*
- Tattler, Gray-tailed, *Heteroscelus brevipes*
- Wandering, *Heteroscelus incanus*
- Teal, Baikal, *Anas formosa*
- ✓ Blue-winged, *Anas discors*
- Cinnamon, *Anas cyanoptera*
- Falcated, *Anas falcata*
- ✓ Green-winged, *Anas crecca*
- Tern, Aleutian, *Sterna aleutica*
- Arctic, *Sterna paradisaea*
- ✓ Black, *Chlidonias niger*
- Black-naped, *Sterna sumatrana*
- Bridled, *Sterna anaethetus*
- ✓ Caspian, *Sterna caspia*
- ✓ Common, *Sterna hirundo*
- Elegant, *Sterna elegans*
- Forster's, *Sterna forsteri*
- Gray-backed, *Sterna lunata*
- Gull-billed, *Sterna nilotica*
- Least, *Sterna antillarum*
- Little, *Sterna albifrons*
- Roseate, *Sterna dougallii*
- Royal, *Sterna maxima*
- Sandwich, *Sterna sandvicensis*
- Sooty, *Sterna fuscata*
- White, *Gygis alba*
- White-winged, *Chlidonias leucopterus*
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- ✓ Brown, *Toxostoma rufum*
- California, *Toxostoma redivivum*
- Crissal, *Toxostoma crissale*
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- Blue Rock, *Monticola solitarius*
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- ✓ Gray-cheeked, *Catharus minimus*
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- ✓ Hermit, *Catharus guttatus*
 - Red-legged, *Turdus plumbeus*
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- ✓ Swainson's, *Catharus ustulatus*
 - Varied, *Ixoreus naevius*
- ✓ Wood, *Hylocichla mustelina*
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- Titmouse, Bridled, *Parus wollweberi*
 - Plain, *Parus inornatus*
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 - Red-tailed, *Phaethon rubricauda*
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 - Black-capped, *Vireo atricapillus*
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 - ✓ Red-eyed, *Vireo olivaceus*
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 - Arctic, *Phylloscopus borealis*
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 - ✓ Bay-breasted, *Dendroica castanea*
 - ✓ Black-and-white, *Dendroica varia*
 - ✓ Black-throated Blue, *Dendroica caerulescens*
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- ✓✓ Black-throated Green, *Dendroica virens*
- ✓✓ Blackburnian, *Dendroica fusca*
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- ✓✓ Blue-winged, *Vermivora pinus*
- ✓✓ Canada, *Wilsonia canadensis*
- ✓✓ Cape May, *Dendroica tigrina*
- ✓✓ Cerulean, *Dendroica cerulea*
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- Elfin Woods, *Dendroica angelae*
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- Golden-crowned, *Basileuterus culicivorus*
- ✓ Golden-winged, *Vermivora chrysoptera* *
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- Hermit, *Dendroica occidentalis*
- ✓ Hooded, *Wilsonia citrina*
- Kentucky, *Oporornis formosus*
- Kirtland's, *Dendroica kirtlandii*
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- ✓ Magnolia, *Dendroica magnolia*
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- ✓ Nashville, *Vermivora ruficapilla*
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- ✓ Wilson's, *Wilsonia pusilla*
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 - ✓ Northern, *Seiurus noveboracensis*
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 - ✓ Cedar, *Bombycilla cedrorum*
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- / Wigeon, American, *Anas americana*
 - Eurasian, *Anas penelope*
- Willet, *Catoptrophorus semipalmatus*
- Wood-Pewee, Eastern, *Contopus virens*
 - Western, *Contopus sordidulus*
- / Woodcock, American, *Scolopax minor*
 - Eurasian, *Scolopax rusticola*
- Woodpecker, Acorn, *Melanerpes formicivorus*
 - Black-backed, *Picoides arcticus*
 - Downy, *Picoides pubescens*
 - Gila, *Melanerpes uropygialis*
 - Golden-fronted, *Melanerpes aurifrons*
 - Hairy, *Picoides villosus*

Ivory-billed, *Campephilus principalis*
Ladder-backed, *Picoides scalaris*
Lewis', *Melanerpes lewis*
Nuttall's, *Picoides nuttallii*
Pileated, *Dryocopus pileatus*
Puerto Rican, *Melanerpes portoricensis*
Red-bellied, *Melanerpes carolinus*
Red-cockaded, *Picoides borealis*
Red-headed, *Melanerpes erythrocephalus*
Strickland's, *Picoides stricklandi*
Three-toed, *Picoides tridactylus*
White-headed, *Picoides albolarvatus*

Woodstar, Bahama, *Calliphlox evelynae*

Wren, Bewick's *Thryothorus bewickii*

Cactus, *Campylorhynchus brunneicapillus*

Canyon, *Catherpes mexicanus*

Carolina, *Thryothorus ludovicianus*

✓ House, *Troglodytes aedon*

✓ Marsh, *Cistothorus palustris*

Rock, *Salpinctes obsoletus*

✓ Sedge, *Cistothorus platensis*

✓ Winter, *Troglodytes troglodytes*

Wryneck, Eurasian, *Jynx torquilla*

✓ Yellowlegs, Greater, *Tringa melanoleuca*

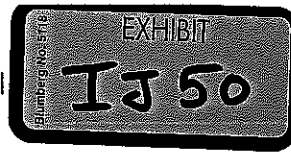
✓ Lesser, *Tringa flavipes*

✓ Yellowthroat, Common, *Geothlypis trichas*

Gray-crowned, *Geothlypis poliocephala*

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Luis Cabassa June 30, 2008

BIRDS PROTECTED BY THE MIGRATORY BIRD TREATY ACT

*Species Highlighted by Luis Cabassa, 174 Beebe Hill Rd.
Falls Village, CT 06031*

List of Migratory Birds

June 30, 2008

This is an adaptation of the List of Migratory Birds that appears in Title 50 of the Code of Federal Regulations, Section 10.13. The major difference between this list and the "official" published list is that the scientific and common (English) names have been changed to conform to the most recent taxonomy (as reflected in the 1983 AOU Check-list and published supplements through 1995). In cases where a name in the following list differs from that in the CFR list, the name in the CFR list is cross-referenced in parentheses. EXAMPLES: in the CFR list, the Yellow Bittern is listed as Chinese Bittern and the scientific name of the Crested Caracara (Caracara plancus) is given as Polyborus plancus. The referenced species are the same in both lists, only the nomenclature has changed.

Alphabetical List

Taxonomic List

Alphabetical List

[A] [B] [C] [D] [E] [F] [G] [H] [I]
[J] [K] [L] [M] [N] [O] [P] [Q] [R] [S] [T] [U] [V] [W] [X] [Y] [Z]

Species seen are Hi-LITED

- Accentor, Siberian, *Prunella montanella*
- Albatross, Black-footed, *Diomedea nigripes*
 - Laysan, *Diomedea immutabilis*
 - Short-tailed, *Diomedea albatrus*
 - Yellow-nosed, *Diomedea chlororhynchos*
- Anhinga, *Anhinga anhinga*
- Ani, Groove-billed, *Crotophaga sulcirostris*
 - Smooth-billed, *Crotophaga ani*
- Auklet, Cassin's, *Ptychoramphus aleuticus*
 - Crested, *Aethia cristatella*
 - Least, *Aethia pusilla*
 - Parakeet, *Cyclorhynchus psittaculus*
 - Rhinoceros, *Cerorhinca monocerata*
 - Whiskered, *Aethia pygmaea*
- Avocet, American, *Recurvirostra americana*

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- Barn-Owl, Common (see Owl, Barn)
- Beardless-Tyrannulet, Northern, *Camptostoma imberbe*
- ~~Becard, Rose-throated~~, *Pachyramphus aglaiae* (NO)
- Bittern, American, *Botaurus lentiginosus*
 - Chinese (see Bittern, Yellow)
 - Least, *Ixobrychus exilis*

Yellow (=Chinese), *Ixobrychus sinensis*
 Schrenk's, *Ixobrychus eurhythmus*
 Black-Hawk, Common, *Buteogallus anthracinus*
 Blackbird, Brewer's, *Euphagus cyanocephalus*
 ✓ Red-winged, *Agelaius phoeniceus*
 Rusty, *Euphagus carolinus*
 Tawny-shouldered, *Agelaius humeralis*
 Tricolored, *Agelaius tricolor*
 Yellow-headed, *Xanthocephalus xanthocephalus*
 Yellow-shouldered, *Agelaius xanthomus*
 ✓ Bluebird, Eastern, *Sialia sialis*
 Mountain, *Sialia currucoides*
 Western, *Sialia mexicana*
 Bluethroat, *Luscinia svecica*
 Bobolink, *Dolichonyx oryzivorus*
 Booby, Blue-footed, *Sula nebouxii*
 Brown, *Sula leucogaster*
 Masked, *Sula dactylatra*
 Red-footed, *Sula sula*
 Brambling, *Fringilla montifringilla*
 Brant, *Branta bernicla*
 Bufflehead, *Bucephala albeola*
 Bullfinch, Eurasian, *Pyrrhula pyrrhula*
 Puerto Rican, *Loxigilla portoricensis*
 Bunting, Indigo, *Passerina cyanea*
 Lark, *Calamospiza melanocorys*
 Lazuli, *Passerina amoena*
 McKay's, *Plectrophenax hyperboreus*
 Painted, *Passerina ciris*
 Pallas' (=Reed-bunting, Pallas'), *Emberiza pallasii*
 Reed, (=Reed-Bunting, Common), *Emberiza schoeniculus*
 Rustic, *Emberiza rustica*
 Snow, *Plectrophenax nivalis*
 Varied, *Passerina versicolor*
 Bushtit, *Psaltriparus minimus*

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Canvasback, *Aythya valisneria*
 Caracara, Crested, *Caracara (=Polyborus) plancus*
 ✓ Cardinal, Northern, *Cardinalis cardinalis*
 Carib, Green-throated, *Eulampis holosericeus*
 Catbird, Gray, *Dumetella carolinensis*
 Chat, Yellow-breasted, *Icteria virens*
 ✓ Chickadee, Black-capped, *Parus atricapillus*
 Boreal, *Parus hudsonicus*
 Carolina, *Parus carolinensis*
 Chestnut-backed, *Parus rufescens*
 Mexican, *Parus sclateri*
 Mountain, *Parus gambeli*
 Chuck-will's-widow, *Caprimulgus carolinensis*
 Condor, California, *Gymnogyps californianus*
 Coot, American, *Fulica americana*
 Caribbean, *Fulica caribaea*
 Eurasian, *Fulica atra*
 Hawaiian (=American), *Fulica alai (=americana)*
 Cormorant, Brandt's, *Phalacrocorax penicillatus*
 Double-crested, *Phalacrocorax auritus*
 Great, *Phalacrocorax carbo*
 Neotropic (=Olivaceous), *Phalacrocorax brasilianus (=olivaceous)*
 Olivaceous (see Cormorant, Neotropic)
 Pelagic, *Phalacrocorax pelagicus*
 Red-faced, *Phalacrocorax urile*

Cowbird, Bronzed, *Molothrus aeneus*
Brown-headed, *Molothrus ater*
Shiny, *Molothrus bonariensis*
Crake, Corn, *Crex crex*
Yellow-breasted, *Porzana flaviventer*
Crane, Common, *Grus grus*
Sandhill, *Grus canadensis*
Whooping, *Grus americana*
Creeper, Brown, *Certhia americana*
Crossbill, Red, *Loxia curvirostra*
White-winged, *Loxia leucoptera*
/ Crow, American, *Corvus brachyrhynchos*
Fish, *Corvus ossifragus*
Hawaiian, *Corvus hawaiiensis*
Mexican, *Corvus imparatus*
Northwestern, *Corvus caurinus*
White-necked, *Corvus leucognaphalus*
Cuckoo, Black-billed, *Coccyzus erythrophthalmus*
Common, *Cuculus canorus*
Mangrove, *Coccyzus minor*
Oriental, *Cuculus saturatus*
Yellow-billed, *Coccyzus americanus*
Curlew, Bristle-thighed, *Numenius tahitiensis*
Eskimo, *Numenius borealis*
Far Eastern, *Numenius madagascariensis*
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✓ Mourning, *Zenaida macroura*
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White-winged, *Zenaida asiatica*
Zenaida, Zenaida aurita
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Short-billed, *Limnodromus griseus*
/ Duck, American Black, *Anas rubripes*
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Laysan, *Anas laysanensis*
Masked, *Oxyura dominica*
Mottled, *Anas fulvigula*
Ring-necked, *Aythya collaris*
Ruddy, *Oxyura jamaicensis*
Tufted, *Aythya fuligula*
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Great, *Ardea* (=Casmerodius) *alba* (=albus)
Intermediate (=Plumed), *Mesophoyx* (=Egretta) *intermedia*
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Reddish, *Egretta rufescens*
Snowy, *Egretta thula*
Eider, Common, *Somateria mollissima*
King, *Somateria spectabilis*
Spectacled, *Somateria fischeri*
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Fieldfare, *Turdus pilaris*
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✓ Purple, *Carpodacus purpureus*
Rosy (see Rosy-Finch, Black; Rosy-Finch, Brown-capped; and Rosy-Finch, Gray-crowned)
Flamingo, Greater, *Phoenicopterus ruber*
✓ Flicker, Gilded (=Northern), *Colaptes chrysoides* (=auratus)
✓ Northern, *Colaptes auratus*
Flycatcher, Acadian, *Empidonax virescens*
Alder, *Empidonax alnorum*
Ash-throated, *Myiarchus cinerascens*
Brown-crested, *Myiarchus tyrannulus*
Buff-breasted, *Empidonax fulvifrons*
Cordilleran (=Western), *Empidonax occidentalis* (=difficilis)
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Fork-tailed, *Tyrannus savana*
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Gray-spotted, *Muscicapa griseisticta*
Great Crested, *Myiarchus crinitus*
Hammond's, *Empidonax hammondii*
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Blue-gray, *Polioptila caerulea*

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 Black-tailed, *Limosa limosa*
 Hudsonian, *Limosa haemastica*
 Marbled, *Limosa fedoa*
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 ✓ Goldfinch, American, *Carduelis tristis*
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 Bean, *Anser fabalis*
 ✓ Canada, *Branta canadensis*
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 ✓ Grackle, Boat-tailed, *Quiscalus major*
 Common, *Quiscalus quiscula*
 Great-tailed, *Quiscalus mexicanus*
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 Grasshopper-Warbler, Middendorff's, *Locustella ochotensis*
 Grassquit, Black-faced, *Tiaris bicolor*
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 Eared, *Podiceps nigricollis*
 Horned, *Podiceps auritus*
 Least, *Tachybaptus dominicus*
 Pied-billed, *Podilymbus podiceps*
 Red-necked, *Podiceps grisegena*
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 ✓ Grosbeak, Black-headed, *Pheucticus malanocephalus*
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 Crimson-collard, *Rhodothraupis celaeno*
 Evening, *Coccothraustes vespertinus*
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 Rose-breasted, *Pheucticus ludovicianus*
 Yellow, *Pheucticus chrysopheplus*
 ✓ Ground-Dove, Common, *Zenaida passerina*
 Ruddy, *Zenaida talpacoti*
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Sabine's, *Xema sabini*
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✓ Harrier, Northern, *Circus cyaneus*
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Red-shouldered, *Buteo lineatus*
✓ Red-tailed, *Buteo jamaicensis*
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Tropical, Tyrannus melancholicus
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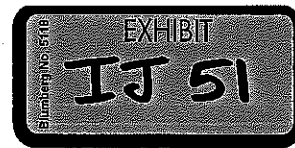
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**Briefing Paper on the Need for Research into the Cumulative Impacts of
Communication Towers on Migratory Birds and Other Wildlife in the United States
Division of Migratory Bird Management (DMBM), U.S. Fish & Wildlife Service – for
Public Release**

LAST UPDATED: August 13, 2007

[Comm Tower Research Needs Public Briefing-2-807.doc]

ISSUE: The number of communication towers including radio, television, cellular, microwave, emergency broadcast, national defense, and paging towers has grown exponentially in the U.S. over the past decade. These towers present health and safety challenges for humans, but they are also a growing impact to populations of migratory birds, 4-5 million of which are conservatively estimated to die each year in tower and guy-wire collisions (Manville 2005). Virtually unknown, however, are the potential effects of non-ionizing, non-thermal tower radiation on avifauna, including at extremely low radiation levels, far below maximum safe¹ exposure levels previously determined for humans.

This briefing paper addresses the need to cumulatively assess the impacts of communication towers on migratory birds both from collisions and radiation, especially neotropical migratory songbirds that are most impacted (Shire *et al.* 2000). The paper discusses some suggested research protocols needed to conduct a nationwide cumulative impacts analysis that would assess effects of tower collisions and radiation on avifauna and on other wildlife pollinators including bats and bees.

BACKGROUND

Light Attraction to Birds in Inclement Weather

Beginning with the earliest reported bird-tower kill in the U.S. (in September 1948 at a 137-m [450-ft] radio tower in Baltimore, MD [Aronoff 1949]), the nighttime attraction of lighting during inclement weather has proved to be a key liability for birds. However, much of the past research focused on carcass collections that were not necessarily correlated to nighttime lighting or to weather events. For example, the first long-term study of the impact of a television tower on birds began in 1955 by the Tall Timbers Research Station in FL. After the first 25 years of the study, 42,384 birds representing 189 species were tallied (Crawford and Engstrom 2001). Kemper (1996) reported collecting more than 12,000 birds killed in inclement weather on one night at a television tower in Eau Clair, WI. Manville (2005, 2007) provided additional details of documented bird-tower collision studies in the U.S., especially in regard to lighting and weather events.

Recently, Gehring *et al.* (2006, 2007) reported where red, steady-burning lights were extinguished allowing only flashing or strobe lights to persist on towers, the lighting change-out resulted in a 71% reduction in avian collision mortality at towers in MI. In a short-term study,

¹ "Safe" levels were based on thermal heating standards, now inapplicable. The standards are nearly 25 years out of date, and the EPA office tasked to direct the human safety issues was eliminated due to budget cuts in the early 1980s. Furthermore, the standards in place do not address the potential effects of radiation on wildlife. No government agency currently monitors the rising background levels of electromagnetic radiation (EMF). Current safety standards assume that non-ionizing radiation is safe if the power is too weak to heat living tissue. However, since the 1980s, growing amounts of published research are showing adverse effects on both humans and wildlife far below a thermal threshold – usually referred to as "non-thermal effects," especially under conditions of long-term, low-level exposure (DiCarlo *et al.* 2002, Levitt and Morrow 2007).

Evans *et al.* (2007) looked at lighting attraction at ground level in complete cloud cover, but found that neither red, steady-burning nor red flashing lights induced bird aggregation. They hypothesized that the disorientation to red light only occurs if birds are actively using magnetoreception and the red light creates an imbalance in the magnetoreception mechanism. Additional studies are underway to better understand the mechanisms of lighting attraction.

Published research protocols developed to count and estimate bird-tower kills have been developed (*e.g.*, Avery *et al.* 1978, Manville 2002, Derby *et al.* 2002, and Gehring *et al.* 2007) and will be briefly reviewed below for use in future cumulative effects assessments for both collision and radiation studies.

Potential Radiation Impacts to Birds

In 2002, T. Litovitz (Catholic University, pers. comm.; DiCarlo *et al.* 2002) raised troubling concerns about the impacts of low-level, non-thermal radiation from the standard 915 MHz cell phone frequency on domestic chicken embryos under laboratory conditions. Litovitz noted deformities, including some deaths of the embryos subjected to hypoxic conditions under extremely low radiation doses².

Preliminary research on wild birds at cellular phone tower sites in Valladolid, Spain, showed strong negative correlations between levels of tower-emitted microwave radiation and bird breeding, nesting, and roosting in the vicinity of the electromagnetic fields (Balmori 2003). Birds had historically been documented to roost and nest in these areas. House Sparrows, White Storks, Rock Doves, Magpies, Collared Doves, and other species exhibited nest and site abandonment, plumage deterioration, locomotion problems, and even death among some birds found close to cellular phone antennas. Balmori did not observe these symptoms prior to construction of the cell phone towers. Balmori (2004, 2005) noted that the White Stork appeared most heavily impacted by the tower radiation during the 2002-2004 nesting season in Spain. Manville (2005) reported Balmori's (2003) preliminary results, and raised concerns of similar events in the U.S.

Everaert and Bauwens (2007) found strong negative correlations between the amount of radiation presence (both in the 900 and 1800 MHz frequency bands) and the presence of male House Sparrows. In areas with high electric field strength values, fewer House Sparrow males were observed. Everaert and Bauwens' preliminary conclusion, long-term exposure to higher radiation levels was affecting bird abundance or bird behavior in this species. Balmori and Hallberg (2007) reported similar declines in House Sparrows directly correlated with levels of electromagnetic radiation in Valladolid, Spain.

Of concern to DMBM are the potential impacts of radiation on bird populations. Beason and Semm (2002) tested neural responses of Zebra Finches to 900 MHz radiation under laboratory conditions and showed that 76% of the neurons responded by 3.5-times more firings. No studies have yet been conducted in the U.S. on radiation impacts to wild bird populations. Magnetite, a mineral highly sensitive to electromagnetic frequencies (EMFs), has been discovered in human, bird, and fish brains. It has been suggested that radio frequency radiation (RF) may be acting as an attractant to birds since their eye, beak and brain tissues are loaded with magnetite, a mineral highly sensitive to magnetic fields that birds use for navigation (Ritz *et al.* 2004, R. Beason cited in Levitt and Morrow 2007). Communication tower radiation in the U.S. may already be impacting breeding and migrating populations of birds, bees, and other wildlife, based on research conducted in Europe. It is therefore important to gain a far better understanding of the

² *i.e.*, doses as low as 1/10,000 below the allowable "safe" level of radiation (T. Litovitz 2002 pers comm.; DiCarlo *et al.* 2002).

suspected impacts of radiation on birds and other wildlife, particularly if those suspected impacts are having effects on species at the population level.

Potential Radiation Effects on Other Pollinators

Radiation has also been implicated in effects on domestic honeybees, pollinators whose numbers have recently been declining due to “colony collapse disorder” (CCD) by 60% at U.S. West Coast apiaries and 70% along the East Coast (Cane and Tepedino 2001). CCD is being documented in Greece, Italy, Germany, Portugal, Spain, and Switzerland. One theory regarding bee declines proposes that radiation from mobile phone antennas is interfering with bee navigational systems. Studies performed in Europe have documented navigational disorientation, lower honey production, and decreased bee survivorship (Harst *et al.* 2006, Kimmel *et al.* 2006, Bowling 2007). This research needs further replication and scientific review, including in North America. Because pollinators, including birds, bees, and bats, play a fundamental role in food security (33% of our fruits and vegetables would not exist without pollinators visiting flowers [Kevan and Phillips 2001]), as pollinator numbers decline, the price of groceries goes up.

Harst *et al.* (2006) performed a pilot study on honeybees testing the effects of non-thermal, high frequency electromagnetic radiation on beehive weight and flight return behavior. They found that of 28 unexposed bees released 800 m (2,616 ft) from each of 2 hives, 16 and 17 bees returned in 28 and 32 minutes, respectively, to hives. At the 1900 MHz continuously-exposed hives, 6 bees returned to 1 hive in 38 minutes while no bees returned to the other hive. In exposed hives, bees constructed 21% fewer cells in the hive frames after 9 days than those unexposed. Harst *et al.* selected honeybees for study since they are good bio-indicators of environmental health and possibly of “electrosmog.” Because of some concerns raised regarding the methods used to conduct the Harst *et al.* (2006) study, specifically the placement of the antenna where bees could contact it (*i.e.*, potentially a bias), the experimental methods need to be redesigned and the studies retested to better elucidate and fine tune the impacts of radiation. The results, while preliminary however, are troubling. Kimmel *et al.* (2006) performed field experiments on honeybees under conditions nearly identical to the Harst *et al.* (2006) protocol except that bees were stunned with CO₂ and released simultaneously 500 m (1,635 ft) from the hives. However, in one of their experimental groups, they shielded the radiation source and antenna in a reed and clay box to address potential biases raised in the Harst *et al.* study. Sixteen total hives were tested, 8 of which were irradiated. After 45 minutes when the observations were terminated, 39.7% of the non-irradiated bees had returned to their hives while only 7.3% of the irradiated bees had.

RESEARCH DISCUSSION

If communication tower collisions are killing 4-5 million or more birds per year in the U.S. due to collisions, what impact – if any – might radiation have on avifauna? Bees? Other wildlife? We simply do not know. In 2000, the Communication Tower Working Group (chaired by DMBM/Manville) developed a nationwide tower research protocol that would assess cumulative impacts from tower collisions nationwide, suggesting the use of some 250 towers of different height, lighting, and support categories. The preliminary cost estimate for a 3-year study was \$15 million. No funding was ever acquired and the collision study has not yet been conducted.

The proposed 2000 study was to focus on the collision impacts of communication towers to birds during spring and fall migrations, but the same types of mortality monitoring could be conducted during the late spring/summer breeding seasons, looking particularly for evidence of injury and death to breeding birds in close proximity to communication towers. Radiation levels would need to be measured at the tower sites and nests adjacent to the towers during nesting activity, and bird behavior would also need to be monitored throughout the breeding season. Laboratory necropsies

would need to be performed on birds and other wildlife suspected of impacts from radiation to better understand what caused their deaths and to verify that they did not die from blunt force trauma from tower or wire collisions. Pre-construction studies should be performed to assess habitat use by breeding and resident avifauna. Post-construction studies should assess site abandonment, development of deformities, injuries, and deaths. A careful review of the protocols developed by Balmori (2004, 2005), Balmori and Hallberg (2007), Everaert and Bauwens (2007), and others is critical because similar studies should be performed in the U.S.

METHODS FOR ASSESSING AVIAN COLLISION MORTALITY

Methods for Assessing Tall Tower Mortality

Bird strike mortality studies at “tall”³ communication towers conducted previous to research performed by Avery *et al.* (1978) indicated that most dead birds were found within 60 m (197 ft) of the central communication tower structure. Avery *et al.* assessed songbird mortality at a 369-m (1,210-ft) Omega Loran U.S. Coast Guard tower in ND. Based on daily monitoring during 3 fall and 2 spring migration seasons, 63% of the birds they found dead or injured at this tower were within 92 m (300 ft) of the tower. Avery *et al.* placed tagged bird carcasses (*e.g.*, House Sparrows and European Starlings) in catchment nets and on non-netted habitats (*e.g.*, gravel pads, roads, and marshy plots) to assess persistence and scavenging/predation loss. They completely examined the inner 46-m (150-ft) radius of the tower (concentric circle designated “A”) for bird carcasses, including both the areas covered with catchment nets and the non-netted areas. Placing tagged carcasses in random search plots, which are then found or not found and/or removed or not removed, helps determine biases (Erickson *et al.* 1999). However, there are inherent problems associated with using tagged bird carcasses, including the attraction of predators, cost, availability, and adequate sample size (D. Strickland, WEST Inc., pers. comm.).

In addition to the total area assessed during this study (168 ha [415 ac]), for the remainder of the search area, Avery *et al.* (1978) divided the habitat into concentric circles of radii 92 m (designated “B”; 303 ft), 183 m (C; 600 ft), and 731 m (D; 2,398 ft), respectively. Two compass lines (north-south and east-west) divided B, C, and D into 12 substrata beyond the inner core. In each of the substratum, 2 net catchment sampling plots, 12.4 m (41 ft) on a side, were randomly selected. Nylon netting suspended on steel frames 1.5 m (5 ft) high, with the net’s center anchored to the ground, was utilized. See Manville (2002) beyond for additional net details.

Sampling nets were demonstrated by Avery *et al.* (1978) to be highly effective in preventing losses to scavengers and predators; none of 33 of the test birds placed in nets during the Avery *et al.* study were taken during the first night, but 12 of 69 test birds placed on non-netted gravel sampling plots were taken during the same period. During the Avery *et al.* study, dead bird searches were made daily at dawn during the peak of songbird migration. In a study at a Tallahassee, FL, television tower – where sampling nets were not used – scavenging was considerably higher; only 10 of 157 birds were left undisturbed after one night (*i.e.*, 93.6% scavenging; Crawford 1971).

Homan *et al.* (2001) placed carcasses of House Sparrows in dense vegetation, comparing searcher efficiencies of humans and canines. The dogs received no special training in carcass searching.

3

hereafter, towers greater than 61 m (199 ft) above ground level (AGL), generally guyed, and always lit at night.

Thirty-six trials were conducted in 5 x 40-m (16 x 131-ft) study plots. Humans found 45% of the carcasses while dogs found 92%. The ratio of recovered to missed carcasses was approximately 12:1 for dogs and 1:1 for humans, making dogs much more efficient in finding carcasses. Searcher efficiencies were not improved but remained similar when testing residual cover (April searches) versus new growth cover (August searches). Because the protocol in the Homan *et al.* study improved quantitative and qualitative assessments, it provides considerable promise for the research initiatives being proposed in this briefing paper.

Arnett (2006) further tested the dog-search protocols of Homan *et al.* (2001) and others, assessing the abilities of dog-handler teams to recover dead bats at 2 commercial wind turbine facilities. Dogs found 71% of the bats placed during searcher-efficiency trials at Mountaineer, WV, and 81% of those at Meyersdale, PA, while human searchers found only 42% and 14% of the carcasses, respectively. Both dogs and humans found a high proportion of the trial bats within 10 m (33 ft) of the turbine tower, usually in open ground (88% and 75%, respectively). During a 6-day fatality search trial at 5 Mountaineer turbines, dog-handler teams found 45 carcasses while human searchers during the same period found only 19 (42%). As vegetation height and density increased, humans found fewer carcasses while dog-handler team searcher efficiencies remained high. Arnett's (2006) study further reinforces the hypothesis that use of dogs greatly improves efficiencies in finding dead bats very similar to what Homan *et al.* (2001) found for locating passerines. Dog use should be given serious consideration in conducting bird and bat mortality studies at telecommunications towers.

From 2003 through 2005, Gehring *et al.* (2006, 2007) studied 24 tall communication towers in MI. They used flagged, straight-line transects, each technician walking at a rate of 45-60 m (147-196 ft) per minute and searching for carcasses within 5 m (16 ft) on either side of each transect, as suggested by Erickson *et al.* (2003). The transects covered a circular area under each tower with a radius equal to 90% the height of the tower. The straight line transects were much easier to navigate than were circular transects (J. Gehring, Michigan Natural Features Inventory, pers. comm.). Due to dense vegetation, observer fatigue, human error, scavenging by predators, and crippling loss of birds and bats that may have escaped the detection area, Gehring *et al.* tested each technician's observer detection rate and rate of carcass removal. Ten bird carcasses of predominately Brown-headed Cowbirds, with painted plumage to simulate fall song bird migration plumage, were placed once each field season within each study plot to assess observer efficiencies. Likewise, 10-15 predominately Brown-headed Cowbirds were placed by each technician at the edge of designated tower search area to monitor the daily removal of carcasses by scavengers. These carcasses were not painted to avoid placing any foreign scent on them. No catchment nets were used in this study.

Methods for Assessing Short Tower Mortality

Manville (2002) developed a protocol for the U.S. Forest Service (USFS) to study the effects of cellular telecommunications towers on birds and bats, recommending use of elevated catchment nets for a Coconino, Kaibab, and Prescott National Forest study in AZ. Modifying the Avery *et al.* (1978) search protocol, Manville suggested use of 1.9-cm (0.75-in) mesh knitted polyethylene nets, 15 x 15 m (50 x 50 ft) in size, suspended 1.5 m (5 ft) above ground, with 8 gauge monofilament nylon line attached around the periphery of the entire net, supported with 2-m-long (6.5-ft) steel angle posts driven into the ground and spaced every 2-3 m (7-10 ft) apart. He recommended pulling the center of each net close to the ground, securing with monofilament to a cinder block, thus creating a downslope gradient from the edge of the net to its center so a carcass landing in the net would tend not to be blown from the netting edge to the ground by a strong wind. He did not recommend using a wooden lip on the net's edges as Avery *et al.* (1978) had suggested. Materials for each net were estimated to cost \$320 (Avery and Beason 2000).

Manville (2002) postulated that use of elevated catchment nets would make finding dead birds killed by tower strikes more reliable, especially under variable habitat conditions (*e.g.*, unsuitable substrate for searching, tall grass, shrubs, roots, boulders, or trees). Manville recommended breaking down the tower's circumference into 3, 120° arcs, then breaking the study plot into 2 concentric circles. The radius of the first circle from the tower's center was 30 m (100 ft) and nets were to be randomly deployed to cover 24% of the total area of that concentric circle, 1 net randomly placed in each 120° arc. For the second concentric circle (30-60 m in radius from the center [100-197 ft]), nets were placed randomly in 8% of the total area, 1 net randomly placed in each of the 3 arcs.

Manville (2002) did not recommend using tagged bird carcasses in the AZ study because he believed that double sampling would address sampling efficiency biases. Double sampling involves (1) net sampling, allowing for an estimate of the number of carcasses that fall beneath each tower and are relatively unbiased for searcher efficiency and carcass removal, and (2) ground sampling where biases are inherent. For short towers, he recommended the entire area the radius of the tower height be completely searched (including under the nets) at dawn each day during the migration season and once weekly during the breeding season. Net sampling allows for adjustment of the ground sampling estimates that would correct for carcass removal and searcher efficiency bias based on the relative difference of the number of carcasses found using the 2 sampling methods at each communication tower studied.

Manville (2002) indicated that the probability of catching a bird in a net would change with increased distance from the tower (*i.e.*, birds may fly or be carried by the wind for a distance before dying). He suggested that if there is a bias because birds tend to die greater than 30 m (100 ft) from a short tower, probabilities can be determined by searching strip transects that radiate from a tower. He recommended using a transect 1.5- 2 times the height of the tower, 15 m (50 ft) wide, placed on a randomly selected compass line. Carcass searches within the transect should help to estimate the area that should be sampled by nets, develop a correction factor outside the radius of the area sampled by the nets, and improve the correction factor for ground surveys conducted exclusive of the net surveys. Manville suggested this transect survey be conducted at least once per week, preferably in the early morning hours, during both migration and breeding seasons. With the recent use of trained dogs to detect and locate dead and injured birds and bats, where dogs have been shown to be at least 50% more effective in finding carcasses, dog use should be considered a viable monitoring alternative (E. Arnett, Bat Conservation International, pers. comm., Homan *et al.* 2001, Arnett 2006).

Derby *et al.* (2002) modified the Manville (2002) protocol to conduct the cellular telecommunications tower study in AZ for the USFS. There, 6 of the 7 cell towers were surrounded by 3-m (10 ft) walls, 29 m (95-ft) long on each side. The walled square was divided into 4 equal blocks, and within 1 of these blocks a 12 x 12-m (40 x 40-ft) nylon mesh net was randomly placed based on net specifications recommended by Manville (2002) but placed > 3 m (10 ft) above the ground to allow company personnel to perform maintenance on the sites. Outside the walled compounds, Derby *et al.* used 4, 6 x 6-m (20 x 20-ft) nets, 3 of the nets randomly set outside the wall to a distance of 30.5 m (100 ft) from the tower, and the 4th net randomly placed in the band from 31 to 61 m (100-200 ft) from the tower. Inside the walled compound the entire area was searched by walking transects 6 m (20 ft) apart (3 m [10 ft] search width). The surveys were performed at dawn 4 times per week during peak songbird migration.

Derby *et al.* (2002) also recommended using straight line transects, 4 oriented perpendicular to the walls, and 4 diagonal from the corners of the wall – representing the “spokes of a wheel.”

Each transect was 61 m (200 ft) long, and 6-m (20 ft) wide. Because the Derby *et al.* protocol also used double sampling, no tagged carcasses were used in their study.

Both Manville (2002) and Derby *et al.* (2002) recommended daily searches of all electrical wiring to assess for electrocution and wire collision mortality.

Homan *et al.* (2001) used Labrador retrievers and a Chesapeake Bay retriever to search 6 plots, 5 x 40 m (16 x 131 ft) in size, delineated by flagging, to detect 8 thawed House Sparrow carcasses randomly thrown in each of the plots from 1 m (3 ft) outside the plot, allowing the human or human-dog team to search each plot for 10 minutes. Dogs were kept on 5-m (16-ft) leashes during searches. Humans were active searchers when using the dogs. Searches were not conducted during steady rain or when winds were ≥ 32 km/hr (20 mph). The technique with leashed dogs could easily be used to survey both tall and short tower plots, based on the protocols previously recommended. With the dogs confined to leashes, additional training would be unnecessary.

Arnette (2006) used 2 trained chocolate Labrador retrievers to locate test bat carcasses of different species and in different stages of decomposition at commercial wind turbine facilities on the Appalachian Mountain front in PA and WV. His dogs were trained in basic obedience, "quartering" (*i.e.*, systematically searching back and forth in a 10-m-wide [33 ft] transect), and blind retrieval handling skills. The dogs were trained with dead bats 7 days prior to field trials. When a dog found a test bat, the dog was rewarded with a food treat if it performed the task of finding the bat, sitting or stopping movement when given a whistle command to do so, and leaving the carcass undisturbed. Arnette walked the transect lines at a rate similar to that of humans (*i.e.*, approximately 13-25 m/min [43-82 ft/min]) while the dogs were allowed to quarter the entire width of the transect (5 m [16 ft] on either side of the center line). While this technique was tested on bats, it also shows great promise for use on birds. Dogs would require additional training, but unlike the Homan *et al.* (2001) technique, they would not need to be leashed. The Arnette technique also shows great promise for use at both tall and short communication towers to locate dead birds and bats.

METHODS FOR ASSESSING RADIATION IMPACTS TO BIRDS

Methods for Assessing Radiation Impacts at Tall Towers

At present, radiation studies at tall towers in Europe have not yet been conducted since the impacts to birds and other wildlife have been documented at short, cellular communication towers. The methods suggested below for short tower radiation studies should also be applicable to future tall tower radiation studies.

Methods for Assessing Radiation Impacts at Short Towers

Balmori (2005) selected 60 nests of White Storks in Valladolid, Spain, to monitor breeding success, visiting each nest from May to June 2003, taking care to select nests with similar characteristics located on rooftops. Tree nests were not studied. Nests were selected based on very high (N=30) or very low (N=30) exposure levels of electromagnetic radiation, depending on the distances nests were located from the cell towers. Thirty nests were within 200 m (656 ft) of the towers, while the remaining 30 were located > 300 m (981 ft) beyond any tower. Chick productivity was closely observed. Electric field intensities (radiofrequencies and microwave radiation) were measured using a unidirectional antenna and portable broadband electric field meter set at 10% sensitivity. Between February 2003 and June 2004, 25 visits were made to nests located within 100 m (327 ft) of 1 or several cell phone towers to observe bird behavior. The

visits were made during all phases of breeding, from nest construction until Stork fledging. RFs and EMFs were also measured at all nest sites using a unidirectional antenna and field meter.

Balmori and Hallberg (2007) studied the urban decline of House Sparrows in Valladolid, Spain, since this species is in significant decline in the United Kingdom and western Europe, and because it usually lives in urban environments, where electromagnetic contamination is higher. They felt it would be a good biological indicator for detecting the effects of radiation. Forty visits, approximately 1 per month were made between October 2002 and May 2006, and were performed at each of 30 point transect locations (*i.e.*, point counts, the protocol recommended by Bibby *et al.* 2000) between 7 a.m. and 10:00 a.m. by the same ornithologist following the same protocol. At each transect site, all sparrows heard and seen were counted, without differentiating birds by sex and age, and radio frequencies and levels of microwave radiation were recorded using a unidirectional antenna and a portable broadband electric field meter set at 10% sensitivity. Bird densities from each point were calculated based on the number of sparrows per hectare.

Everaert and Bauwens (2007) counted male House Sparrows during the breeding season at 150 point locations (Bibby *et al.* 2000) in 6 residential districts in Belgium, each point location situated at variable distances (mean= 352 m [1,151 ft]; range= 91- 903 m [298- 2,953 ft]) from nearby cell phone antenna towers. Point counts were conducted for 5 minutes, all male House Sparrows heard singing or visible within 30 m (98 ft) were counted, counts occurred between 7 a.m. and 11:00 a.m. when males were most active, and counts were conducted only during favorable weather conditions. Electric field strengths at 900 MHz and 1800 MHz were measured for 2 minutes at each frequency using a portable calibrated high-frequency spectrum analyzer with a calibrated EMC directional antenna. To measure maximum radiation values, the EMC antenna was rotated in all directions.

METHODS FOR ASSESSING RADIATION IMPACTS TO BEES

Methods for Assessing Radiation Impacts to Bees

Harst *et al.* (2006) exposed 4 beehives to 1900 MHz radiation from an antenna placed at the bottom of each hive immediately under the honeycombs, while they left 4 hives unexposed. Each of the 8 colonies contained approximately 8,000 bees. They were set up in a row, with a block of 4 hives equipped with DECT (Digital European Cordless Telecommunications) stations on the bottom of each hive. Metal lattices were installed between the exposed hives to avoid possible effects to the non-exposed control group. The average transmitting power per station was 10 mW, with peak power at 250 mW. The sending signal was frequency modulated and pulsed with a pulsing frequency of 100 Hz. A transparent 10 cm (4 in) plastic tube with a diameter of 4 cm (1.6 in) was mounted at the entrance of each hive to collect single bees and watch them return later to the hives. Twenty-five bees from each hive were randomly selected, stunned in a cooling box, marked with a marker dot on the thorax, and released 800 m (2,616 ft) away from the hives. All marked bees were released simultaneously and were timed from the moment of their release. Return times were noted as the bees each entered the plastic tubes, with the observation lasting 45 minutes. Any bees returning after 45 minutes were disregarded. Bees were able to touch the radiation sending antenna within the hive. Some have asserted that the antenna placement may have resulted in a behavioral bias in regard to bee response, raising a legitimate concern about the methods used to test bee response to radiation in this experiment.

Harst *et al.* (2006) also studied the effects of radiation on bee building behavior using the protocol discussed above. They photographically documented change in honeycomb area, and measured development of honeycomb weight for each hive. Sixteen colonies were selected for

this experiment, 8 of which were irradiated, all aligned in a row. At the beginning of the experiment, the empty honeycomb frames were weighed, the hives were filled with bees (400 g [14 ounces]), and provided 250 ml (0.26 quart) food. Bees were fed 2 more times during the 9-day experiment. The honeycombs were photographed each day. The placement of the sending antenna, as previously suggested, may have altered bee behavior and hive productivity.

Kimmel *et al.* (2006) tested 16 bee colonies, 8 of which were irradiated. The experiment was nearly identical to that utilized by Harst *et al.* (2006) except that the sending antenna in 1 experimental group was shielded in a reed and clay box to address concerns about behavioral biases raised in the Harst *et al.* study. Bees were paralyzed using CO₂ instead of cold and were simultaneously released 500 m (1,635 ft) from the hives instead of 800 m (2,616 ft).

RESEARCH RECOMMENDATIONS FOR ASSESSING AVIAN COLLISION IMPACTS

Tall Tower Collision Research Recommendations

We recommend using either the Avery *et al.* (1978) or the Gehring *et al.* (2006, 2007) protocol for tall tower collision studies, depending on the feasibility and availability of catchment nets and dead bird carcasses. Avery *et al.* provided the opportunity to use catchment nets, testing searcher efficiency and carcass removal by placing test carcasses on site (in nets and on the ground). The protocol presumes that the majority of carcasses will be found within a certain distance of the tower's base. The protocol has particular utility for studying very tall towers, especially where terrain around the structures is highly variable and difficult to traverse. It can be used as a standing protocol, or modified as a hybrid based on combining other techniques suggested within this paper such as the use of dogs (Homan *et al.* 2001, Arnett 2006). Dogs have tremendous promise for both tall and short tower studies. If trained hunting dogs are used, then the Arnett (2006) protocol is an excellent tool since the dogs can be used off-leash. However, if untrained hunting dogs are available, then the Homan *et al.* (2001) protocol using leashed dogs is an excellent option.

Gehring *et al.* (2006, 2007) also successfully assessed mortality at tall towers, but catchment nets were not deployed in this study. Due in part to timing, budget constraints, and number of towers studied, this protocol has significant utility where many towers need to be studied. It could also be modified by using trained dogs or incorporating catchment nets.

The statistical designs for both short and tall tower studies – both for assessing collisions and radiation impacts, should be worked out with qualified biometricians. Both the USFWS and the USGS/Biological Resources Discipline (BRD) have well qualified statistical expertise. They should be consulted early in the development of a proposed study.

In both short and tall tower studies, data collection must include all of the following: time of day each tower is examined, time spent searching each site, time since the last search, and weather conditions, particularly inclement weather. Weather data should include the previous night's temperature, wind, cloud cover (clear if < 10% cover, partly cloudy 10-90% cover, or overcast > 90% cover), barometric pressure, rainfall, fog, obscuration, and other relevant weather conditions (Derby *et al.* 2002).

When bird and bat carcasses, and injured vertebrates are found, regardless of the sampling method, data must include tower identification number, name of species (if known), date of collection, closest transect, distance from the tower, azimuth to the tower, exact mapped location (GPS coordinates are very helpful), estimated number of days since death/injury, body condition,

probable cause of death, and evidence of scavenging. The carcass is to be collected, numbered, and saved to be used in other investigations (Gehring *et al.* 2007) for which a Federal and possibly state salvage permit will be required (Manville 2002).

Short Tower Collision Research Recommendations

Depending on the availability and utility of catchment nets and the layout of the tower site, we recommend using either the Manville (2002), the Derby *et al.* (2002), Homan *et al.* (2001), or the Arnette (2006) protocols – the latter 2 with greatly improved searcher efficiency, or a hybrid of these methodologies. Manville (2002) suggested using elevated catchment nets, but due to double sampling, he did not recommend using tagged bird carcasses. He also recommended using random transects to adjust for biases.

Derby *et al.* (2002) modified the Manville (2002) protocol, specifically in regard to challenges created by the tower study site in AZ. A randomly-placed catchment net was used within the walled enclosure of each of the sites, and the entire area within the walled compound (ground and net) was searched. Four randomly placed catchment nets were also utilized beyond the walls. Due to double sampling, no tagged bird carcasses were utilized. The protocol could be used as a free-standing technique but should be searched daily during the entire peak of bird migration.

RESEARCH RECOMMENDATIONS FOR ASSESSING RADIATION IMPACTS TO BIRDS

Tall Tower Radiation Research Recommendations

For both short and tall tower studies, any nests close to a tower should be noted, with its GPS coordinates recorded. Breeding, nest success, and survivorship should be monitored, where possible. How birds use their habitats for breeding and residence should be noted, including any issues of site abandonment, egg and clutch failure, development of deformities, injuries, and deaths.

For both short and tall tower studies, where birds appear to be injured or killed by radiation, proximity of the bird/carcass to known nest or roost sites and towers should be noted. Radiation levels at the tower, carcass site, and the nest site should be recorded. Any abnormal behaviors should also be described. Laboratory necropsies should be performed on birds and other wildlife suspected of impacts from radiation to better understand what caused their deaths and to verify that they did not die from blunt force trauma due to collisions. Tower and ambient radiation should be measured using equipment and techniques suggested by Harst *et al.* (2006) and Kimmel *et al.* (2006), or variations of equipment and methods available in the U.S. See the methods section of this paper for specifics.

Where carcass counts need to be assessed at specific tall towers, we suggest using the tall tower collision mortality protocols, discussed above in the methods section of this paper.

Short Tower Radiation Research Recommendations

Depending on the avian species being studied, we recommend using the Balmori (2005) protocol for assessing potential impacts to colonial nesting species such as herons and egrets. Where passerines are to be studied, we suggest the use of the Everaert and Bauwens (2007) and Balmori and Hallberg (2007) protocols for assessing potential impacts. Refer to the methods section above for specific details.

Where carcass counts need to be made at specific short towers, we recommend using the short tower collision mortality protocols, discussed above in the methods section.

RESEARCH RECOMMENDATIONS FOR ASSESSING RADIATION IMPACTS TO BEES

Bees and other pollinators also deserve close scrutiny from the potential impacts of radiation, and their study should be included as part of the overall research effort suggested in this paper. In addition to testing and validating the protocol and results from the Kimmel *et al.* (2006) study (see background and methods sections above), which we recommend be performed at multiple locations in the U.S., bee behavior, hive productivity, and bee survivorship need to be field-tested at both tall and short towers in the U.S. Variations on the protocols used by Harst *et al.* (2006) and Kimmel *et al.* (2006) could easily be developed to field-test potential radiation impacts on bee navigation, flight behaviors, hive productivity, and bee survivorship around both short and tall towers. However, any research protocol developed to assess potential insect impacts – and for that matter, impacts to birds, bats, and other wildlife, must attempt to eliminate extraneous variables that may bias study results. These include everything from antenna placement in the Harst *et al.* (2006) study, to the impacts of diseases, parasites, weather and climatic events, pesticides, contaminants, and other mortality factors on insects and other wildlife. Fine-tuning a research protocol must include the combined efforts of trained entomologists, research radiation specialists, ornithologists, wildlife biologists, and biometricians.

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United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued September 11, 2007 Decided February 19, 2008

No. 06-1165

AMERICAN BIRD CONSERVANCY, INC.
AND FOREST CONSERVATION COUNCIL,
PETITIONERS

v.

FEDERAL COMMUNICATIONS COMMISSION,
RESPONDENT

CTIA - THE WIRELESS ASSOCIATION, ET AL.,
INTERVENORS

Petition for Review of an Order of the
Federal Communications Commission

Jennifer C. Chavez argued the cause for petitioner. With her on the briefs was *Stephen E. Roady*.

Daniel M. Armstrong, Associate General Counsel, Federal Communications Commission, argued the cause for respondent. With him on the brief were *Andrew C. Mergen* and *Jennifer L. Scheller*, Attorneys, U.S. Department of Justice, *Samuel L. Feder*, General Counsel, Federal Communications Commission, *Joseph R. Palmore*, Acting Deputy General Counsel, and *Laurel R. Bergold*, Counsel.

Michael F. Altschul, Gary L. Phillips, Michael P. Goggin, M. Robert Sutherland, Ian H. Gershengorn, Elaine J. Goldenberg, Jane E. Mago, Jerianne Timmerman, Ann West Bobeck, Michael T. Fitch, L Andrew Tollin, and Craig E. Gilmore were on the brief for intervenors in support of respondents.

Before: ROGERS, GARLAND and KAVANAUGH, *Circuit Judges*.

Opinion for the Court filed PER CURIAM.

Dissenting opinion filed by *Circuit Judge* KAVANAUGH.

PER CURIAM: The American Bird Conservancy and Forest Conservation Council petition for review of an order by the Commission denying in part and dismissing in part their petition seeking protection of migratory birds from collisions with communications towers in the Gulf Coast region. *In Re Petition by Forest Conservation Council, American Bird Conservancy and Friends of the Earth for National Environmental Policy Act Compliance* (“Order”), 21 F.C.C.R. 4462 (2006). Their petition claimed that Commission rules and procedures for approving new towers failed to comport with the National Environmental Policy Act (“NEPA”), 42 U.S.C. § 4321 *et seq.*, the Endangered Species Act (“ESA”), 16 U.S.C. § 1531 *et seq.*, and the Migratory Bird Treaty Act (“MBTA”), 16 U.S.C. § 701 *et seq.* We vacate the *Order* because the Commission failed to apply the proper NEPA standard, to provide a reasoned explanation on consultation under the ESA, and to provide meaningful notice of pending tower applications.

I.

Concerned about the effect of “tower kill” on migratory birds in the Gulf Coast region of the United States, Petitioners, on August 26, 2002, formally requested that the Commission, among other things, (i) prepare an environmental impact statement (“EIS”) under NEPA analyzing the effects of all past, present, and reasonably foreseeable tower registrations on migratory birds in the Gulf Coast region; (ii) initiate formal consultation with the United States Fish and Wildlife Service (“FWS”) pursuant to the ESA regarding the Gulf Coast towers’ impact on various bird species; and (iii) take steps in accordance with the MBTA to reduce bird mortality at Gulf Coast tower sites. Petitioners also requested that they be provided notice of and an opportunity to comment on proposed Gulf Coast tower registration applications before they are granted.

While the Gulf Coast petition was pending, the Commission commenced a nationwide proceeding in a new docket. On August 20, 2003, it issued a Notice of Inquiry to gather evidence regarding communications towers’ impact on migratory birds throughout the United States, and to determine whether to change its current rules and processes to better protect migratory birds. *See In re Effects of Communications Towers on Migratory Birds*, Notice of Inquiry, 18 F.C.C.R. 16,938, 16,938 ¶ 1 (2003). In response, the Commission received more than 250 comments expressing divergent views on the law and the facts, including the frequency of fatal collisions and the overall effect on migratory bird populations. Environmental groups claimed that towers kill 4 million to 50 million birds per year, *see, e.g.*, American Bird Conservancy Comments at 2, WT Docket No. 03-187 (Nov. 11, 2003), while industry groups claimed that such claims are overstated, *see, e.g.*, Cellular Telecommunications & Internet Association and National

Association of Broadcasters Comments at 9, WT Docket No. 03-187 (Nov. 12, 2003).

In April 2005, seeking to compel the Commission to act on the Gulf Coast petition, Petitioners filed a petition for a writ of mandamus in this court. Five days after oral argument, the Commission issued the *Order* denying in part, dismissing in part, and deferring in part the Gulf Coast petition. 21 F.C.C.R. 4,462. In dismissing the Gulf Coast petition, the Commission stated that it would address aspects of the migratory bird issue as part of a separate docket examining the issue on a nationwide basis. *Order*, 21 F.C.C.R. at 4463 ¶ 1. The court thereafter dismissed the mandamus case as moot. *See In re Am. Bird Conservancy, Inc.*, D.C. Cir. Docket No. 05-1112 (Apr. 19, 2006).

In November 2006, the Commission issued a notice of proposed rulemaking in the nationwide proceeding in which it sought further comment on the factual, legal, and policy issues regarding the impact of communications towers on migratory birds. *In re Effects of Communications Towers on Migratory Birds*, Notice of Proposed Rulemaking (“*NPRM*”), 21 F.C.C.R. 13,241 (2006). The Commission asked generally whether the impact warrants Commission action under the environmental statutes, *id.* at 13,242 ¶ 1, and expressed uncertainty about the underlying facts, seeking “further comment supported by evidence regarding the number of migratory birds killed annually by communications towers,” *id.* at 13,259 ¶ 36. It also sought comments on “the legal framework governing the Commission’s obligations in this area,” *id.* at 13,256 ¶ 32, and on how to define significant environmental effects in this context. Additionally, the Commission invited comment on whether it should amend its environmental rules or take action “to reduce the number of instances in which migratory birds collide with communications towers.” *Id.* at 13,242 ¶ 1, 13,258

¶ 34. The Commission “tentatively” proposed that communications towers use “medium intensity white strobe lights” rather than red lights that may present a higher risk of tower kill. *Id.* at 13,242-43 ¶ 3. The comment period in the nationwide rulemaking proceeding closed in May 2007, but the Commission has yet to take final action.

Meanwhile, in May 2006, Petitioners sought review of the *Order*. See 47 U.S.C. § 403(a); 28 U.S.C. § 2342(1). Petitioners have standing, for members of these organizations engage in recreational birdwatching and research on birds in the Gulf Coast region, see *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 562-63 (1992), and we proceed to review the *Order* to determine whether it was arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law, 5 U.S.C. § 706(2)(A).¹

¹ Our dissenting colleague’s assertion that this case is unripe, Dis. Op. at 1, rests on the mistaken assumption that the Commission has set about reconsidering Petitioners’ precise requests through its nationwide inquiry into the migratory bird issue. However, the NPRM issued several months after the *Order* nowhere indicates that the Commission is reconsidering the Gulf Coast petition calling for a programmatic EIS under NEPA, formal consultation under the ESA, or notice of pending tower registration applications. Instead, the Commission sought comment on only (1) “the legal framework governing the Commission’s obligations in this area, and in particular the threshold necessary to demonstrate an environmental problem that would authorize or require that the Commission take action,” *NPRM*, 21 F.C.C.R. at 13,256; (2) “particular steps the Commission might take if there is probative evidence of a sufficient environmental effect to warrant Commission action” such as lighting specifications, use of guy wires, tower height, etc., *id.*; and (3) “whether to add an additional criterion for requiring an [environmental assessment] to Section 1.1307(a) of our rules,” *id.* at 13,257. At best, the Commission’s consideration of the “legal framework” may better inform it of the

II.

Petitioners contend that the MBTA, NEPA, and ESA require changes to the Commission's rules and procedures

relevant standards triggering its NEPA and ESA obligations, suggesting that if Petitioners were to file a new petition in the future their requests might receive a different response, but this hardly amounts to a reconsideration of the Gulf Coast petition. In any event, such "purely legal" issues are generally fit for review, *Abbott Laboratories v. Gardner*, 387 U.S. 136, 149 (1967); *Atlantic States Legal Foundation v. EPA*, 325 F.3d 281, 284 (D.C. Cir. 2003), and agencies cannot avoid judicial review of their final actions merely because they have opened another docket that may address some related matters, *see* 5 U.S.C. § 706(1); *Am. Paper Inst. v. EPA*, 996 F.2d 346, 354 n.8 (D.C. Cir. 1993); *Am. Petroleum Inst. v. EPA*, 906 F.2d 729, 739-40 (D.C. Cir. 1990); *see Telecomms. Research & Action Center v. FCC*, 750 F.2d 70 (D.C. Cir. 1984). Neither point is lost on the Commission: not only does its brief not invoke the ripeness doctrine, but while the Commission explicitly deferred consideration of Petitioners' MBTA claim to the nationwide proceeding, it denied and dismissed Petitioners' ESA and NEPA claims.

The cases on which our colleague relies are inapposite. Petitioners did not file a petition for Commission reconsideration, as occurred in *Melcher v. FCC*, 134 F.3d 1143 (D.C. Cir. 1998), and *Wade v. FCC*, 986 F.2d 1433 (D.C. Cir. 1993). Neither have Petitioners filed a new petition on which the Commission has yet to act, as was true in *Friends of Keeseville, Inc. v. FERC*, 859 F.2d 230, 236 (D.C. Cir. 1988). Nor, unlike in *Toca Producers v. FERC*, 411 F.3d 262 (D.C. Cir. 2005), was the Commission's dismissal of the Gulf Coast petition conditional, and, unlike the challenged plan in *Ohio Forestry Ass'n, Inc. v. Sierra Club*, 523 U.S. 726 (1998), the Order has legal effect.

regarding communications towers in the Gulf Coast region. *See* 47 C.F.R. Part 17.

A.

The MBTA provides, with certain exceptions, that it shall be unlawful “to pursue, hunt, take, capture, [or] kill” any migratory bird. 16 U.S.C. § 703. The court has held that the MBTA applies to federal agencies. *Humane Soc’y of the United States v. Glickman*, 217 F.3d 882, 885-86 (D.C. Cir. 2000). Petitioners contend that the Commission unlawfully “takes” migratory birds when birds die in collisions with Commission-licensed towers and sought to have the Commission comply with the MBTA “by taking steps to reduce or eliminate intentional or unintentional ‘takes’ of migratory birds.” Gulf Coast Petition at 20.

The Commission stated in the *Order* that it was analyzing the MBTA issue in the ongoing nationwide proceeding and would therefore defer consideration of the MBTA issue to that docket. Collisions of birds and towers occur throughout the United States and the nationwide proceeding was designed to obtain additional relevant information. We thus conclude that the Commission acted reasonably in deferring consideration of this issue. *See Mobil Oil Exploration & Producing Se. Inc. v. United Distrib. Cos.*, 498 U.S. 211, 230 (1991); *see also FCC v. Schreiber*, 381 U.S. 279, 290-91 (1965).

B.

NEPA does not impose substantive environmental mandates, but it does require federal agencies to establish procedures to account for the environmental effects of certain proposed actions. *See Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 756-57 (2004). In particular, for “major Federal actions significantly affecting the quality of the human environment,” agencies must prepare an EIS that examines, among other

environmental considerations in the decision-making process.” *Id.* § 1.1307(c). If the Commission determines that the proposed action “may have a significant environmental impact,” then it will require the applicant for a tower license to prepare an EA, *id.*, and also may obtain additional information, *id.* § 1.1308(b). Upon analysis of the EA, the Commission must do one of two things: (1) if the Commission determines that the proposed action “would not have a significant impact, it will make a finding of no significant impact” (“FONSI”), *id.* § 1.1308(d); (2) if the EA indicates that the proposed action “will have a significant effect upon the environment,” the Commission must prepare an EIS, *id.* § 1.1314(a); *see also* 40 C.F.R. § 1508.3 (stating that the term “[a]ffecting” in NEPA means “will or may have an effect on”).

The Commission gave two reasons for dismissing the request for a programmatic EIS: (1) “the lack of specific evidence . . . concerning the impact of towers on the human environment,” and (2) “the lack of consensus among scientists regarding the impact of communications towers on migratory birds.” *Order*, 21 F.C.C.R. at 4466 ¶ 11. Neither reason is sufficient to sustain the Commission’s refusal to take action pursuant to NEPA, and together they demonstrate an apparent misunderstanding of the nature of the obligation imposed by the statute.

Most simply, the *Order* fails to follow the Commission’s own regulations implementing NEPA. Under 47 C.F.R. § 1.1307(c), interested persons can request analysis under NEPA of actions that are otherwise categorically excluded. Such persons “shall submit to the Bureau responsible for processing that action a written petition setting forth in detail the reasons justifying or circumstances necessitating environmental consideration in the decision-making process.” *Id.* The Commission’s Bureau must then “review the petition and

consider the environmental concerns that have been raised.” *Id.* “If the Bureau determines that the action may have a significant environmental impact, the Bureau will require the applicant to prepare an EA . . . , which will serve as the basis for the determination to proceed with or terminate environmental processing.” *Id.*

The reasons stated in the *Order* cannot, in light of the petition under review, sustain the Commission’s refusal to prepare an EIS without at least first requiring the preparation of an EA. The Commission acknowledges that § 1.1307(c) applies to the petition, *see* Appellee’s Br. at 25, and that the regulation requires an EA when an action “may” have a significant environmental effect, *see NPRM*, 21 F.C.C.R. at 13,247 (stating that “an EA shall be required pursuant to Section 1.1307(c) or (d) if the Bureau processing an otherwise categorically excluded action finds, in response to a petition or on its own motion, that the proposed construction may have a significant environmental impact.”). The *Order*’s demand for definitive evidence of significant effects – noting Petitioners’ failure to make a “scientific showing that the population of any specific bird species has decreased as a result of collisions” – plainly contravenes the “may” standard. *Order*, 21 F.C.C.R. at 4466 ¶ 9. Similarly, the *Order*’s suggestion that scientific consensus is a precondition to NEPA action is inconsistent with both the Commission’s regulation and with the statute. As the court has admonished, “[i]t must be remembered that the basic thrust of the agency’s responsibilities under NEPA is to predict the environmental effects of a proposed action before the action is taken and those effects fully known.” *Scientists’ Inst. for Pub. Info., Inc. v. Atomic Energy Comm’n*, 481 F.2d 1079, 1091-92 (D.C. Cir. 1973). A precondition of certainty before initiating NEPA procedures would jeopardize NEPA’s purpose to ensure that agencies consider environmental impacts before they act rather than wait until it is too late.

Based on the record before the court, there is no real dispute that towers “may” have significant environmental impact, and thus that the § 1.1307(c) threshold has been met. Indeed, the *Order*’s emphasis on “conflicting studies” and “sharply divergent views” regarding the number of birds killed confirms, rather than refutes, that towers may have the requisite effect. *Order*, 21 F.C.C.R. at 4466 ¶ 10. Under such circumstances, the Commission’s regulations mandate at least the completion of an EA before the Commission may refuse to prepare a programmatic EIS. Although Petitioners seek a programmatic EIS, and not an EA, the Commission’s regulations allow it to pursue an EA as an interim step, and such an EA will determine what subsequent action NEPA requires. The agency may issue a FONSI pursuant to 40 C.F.R. § 1508.13 and 47 C.F.R. § 1.1308(d) “[i]f on the basis of the [EA] the agency finds that the proposed action will produce ‘no significant impact’ on the environment.” *Sierra Club v. Peterson*, 717 F.2d 1409, 1412-13 (D.C. Cir. 1983); *see also, e.g., Nat’l Audubon Soc’y v. Hester*, 801 F.2d, 405, 407 (D.C. Cir. 1986); *Sierra Club v. U.S. Dep’t of Transp.*, 753 F.2d 120, 126 n.3 (D.C. Cir. 1985); *Cabinet Mountains Wilderness/Scotchman’s Peak Grizzly Bears v. Peterson*, 685 F.2d 678, 682 (D.C. Cir. 1982). But if “any ‘significant’ environmental impacts might result from the proposed agency action, then an EIS must be prepared *before* the action is taken.” *Sierra Club*, 717 F.2d at 1415 (emphasis in original); *see also, e.g., Town of Cave Creek, Ariz. v. FAA*, 325 F.3d 320, 327 (D.C. Cir. 2003); *Grand Canyon Trust v. FAA*, 290 F.3d 339, 340 (D.C. Cir. 2002); *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998); *North Carolina v. FAA*, 957 F.2d 1125, 1131 (4th Cir. 1992); *Citizen Advocates for Responsible Expansion, Inc. v. Dole*, 770 F.2d 423, 432-33 (5th Cir. 1985).

We vacate the NEPA part of the *Order*. On remand the Commission shall address Petitioners’ request that it conduct a

programmatic EIS based on a threshold for NEPA analysis that is less stringent than the *Order* reflects. Conflicting data points do not forestall NEPA's mandate. Pursuant to its own regulations, the Commission may commence such analysis through the preparation of an EA.

C.

Section 7 of the ESA requires federal agencies to ensure that any "action" they authorize, fund, or carry out is not likely to "jeopardize the continued existence of any endangered [] or threatened species," or result in the destruction or adverse modification of critical habitats. 16 U.S.C. § 1536(a)(2). Regulations promulgated by the Endangered Species Committee (which is comprised of several federal agencies) define "action" to mean "all activities or programs of any kind," including "the granting of licenses." 50 C.F.R. § 402.02. They also provide that each Federal agency "shall confer" with the FWS "on any action which is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat." *Id.* § 402.10; *see also* 16 U.S.C. § 1536(a)(4). If an agency determines that an action "may affect" endangered or threatened species or critical habitats, the agency must initiate formal consultation with the [FWS], at least unless preparation of a biological assessment or participation in informal consultation indicates that a proposed action is "not likely" to have an adverse affect. 50 C.F.R. § 402.14(a)-(b). Petitioners requested that the Commission formally consult with the FWS regarding the cumulative effects of towers on endangered and threatened species.

The Commission declined to consult with the FWS, stating that there is "no evidence of any synergies" among towers that "would cause them cumulatively to have significant environmental impacts that they do not have individually." *Order*, 21 F.C.C.R. at 4,467 ¶ 14. The Commission's reliance

on a lack of “synergies” was not further explained in the *Order*. This explanation was inadequate. The Commission has not described what kind of showing in the ESA context could demonstrate sufficient environmental effects to justify the “programmatically consultation” that Petitioners seek. Short of Petitioners conducting a programmatic EIS themselves, it is unclear how Petitioners could produce sufficient evidence to meet this standard.

We vacate the ESA part of the *Order* and remand that issue.

D.

The CEQ regulations require agencies to make “diligent efforts to involve the public in preparing and implementing their NEPA procedures.” 40 C.F.R. § 1506.6(a). Commission regulations permit parties to file petitions for EAs to be conducted for the otherwise categorically excluded tower applications. 47 C.F.R. § 1.1307(c). Petitioners requested that the Commission provide adequate public notice of proposed individual tower applications so that they may seek environmental review before the Commission acts.

The Catch-22 for the interested parties who wish to file such a petition is that the Commission provides public notice of individual tower applications only *after* approving them. Although the Commission “enjoys wide discretion in fashioning its own procedures,” *City of Angels Broadcasting, Inc. v. FCC*, 745 F.2d 656, 664 (D.C. Cir. 1984), it cannot evade its duty to comply with the CEQ regulations and its own regulations allowing challenges to tower applications by providing the public with a hollow opportunity to participate in NEPA procedures. Interested persons cannot request an EA for actions they do not know about, much less for actions already completed. It was suggested during oral argument that a simple solution would be for the Commission to update its website

when it receives individual tower applications; Petitioners stated that such a step would address their NEPA notice claim.

We vacate the notice part of the *Order* and remand for the Commission to determine how it will provide notice of pending tower applications that will ensure meaningful public involvement in implementing NEPA procedures.

Accordingly, except as regards deferral of the MBTA issue, we vacate the *Order* and remand the case to the Commission to comply with NEPA and ESA. The results of the NPRM may inform the Commission's decision on remand, but the nationwide proceeding neither incorporates nor supplants the Gulf Coast petition. The Commission has amassed a wealth of information during the past five years, including reports from other federal agencies such as the FWS, a report from its own consultant in 2004, as well as a second round of comments from interested persons. Guided by this opinion, the Commission should be able to proceed with dispatch on remand to resolve the Gulf Coast petition, whether separately or as part of the nationwide proceeding.

KAVANAUGH, *Circuit Judge*, dissenting: Petitioners American Bird Conservancy and Forest Conservation Council are concerned about the effects of communications towers on birds. Here, they challenge an FCC order that addressed the requirements of federal environmental laws for communications towers in the Gulf Coast region of the United States. I would dismiss their lawsuit as unripe because the FCC, in a separate rulemaking proceeding, is re-examining these environmental issues and considering the effects of communications towers on birds *nationwide*, including in the Gulf Coast region. The Commission has gathered considerable factual information and input from interested parties – including from the petitioners in this case – and the FCC’s counsel represented to the Court that the Commission expects to act soon.

This case is thus closely analogous to a situation in which a petitioner comes to court to challenge an agency order while the agency is still considering a petition for reconsideration. We routinely dismiss such cases. *See, e.g., Melcher v. FCC*, 134 F.3d 1143, 1163 (D.C. Cir. 1998) (“If a party determines to seek reconsideration of an agency ruling, it is a pointless waste of judicial energy for the court to process any petition for review before the agency has acted on the request for reconsideration.”) (internal quotation marks omitted); *Wade v. FCC*, 986 F.2d 1433, 1434 (D.C. Cir. 1993) (“The danger of wasted judicial effort that attends the simultaneous exercise of judicial and agency jurisdiction arises whether a party seeks agency reconsideration before, simultaneous with, or after filing an appeal or petition for judicial review.”) (citation omitted).

Even if the Gulf Coast order in isolation is technically final, our ripeness precedents suggest that, at least in these unusual circumstances, we should allow the ongoing administrative process to run its course before we intervene. *See Devia v. NRC*, 492 F.3d 421, 424 (D.C. Cir. 2007)

(“Article III courts should not make decisions unless they have to.”) (internal quotation marks omitted); *Toca Producers v. FERC*, 411 F.3d 262, 266 (D.C. Cir. 2005) (although the challenged orders appeared to be “final agency action within the meaning of the Administrative Procedure Act,” orders were not “sufficiently final” for judicial review because agency’s action in separate docket could “resolv[e] the issues raised” in the appeal) (internal quotation marks omitted); *Friends of Keeseville, Inc. v. FERC*, 859 F.2d 230, 236 (D.C. Cir. 1988) (court “may properly give weight to the interests in judicial economy that are furthered by the avoidance of unnecessary adjudication”); *cf. Nat’l Treasury Employees Union v. United States*, 101 F.3d 1423, 1431 (D.C. Cir. 1996) (describing the “usually unspoken element of the rationale underlying the ripeness doctrine: If we do not decide it now, we may never need to. Not only does this rationale protect the expenditure of judicial resources, but it comports with our theoretical role as the governmental branch of last resort.”).

Dismissing this case on ripeness grounds would serve the interests of judicial economy, permit the Executive Branch to carefully re-examine and resolve environmental issues related to communications towers and birds on a nationwide basis, and impose minimal hardship on the petitioners who are themselves participating in the nationwide rulemaking proceeding. *See Ohio Forestry Ass’n, Inc. v. Sierra Club*, 523 U.S. 726, 733-35 (1998) (further administrative or judicial proceedings are not sufficient hardship to justify review in a case that would otherwise be unripe); *AT&T Corp. v. FCC*, 349 F.3d 692, 700 (D.C. Cir. 2003) (“If the only hardship a claimant will endure as a result of delaying consideration of the disputed issue is the burden of having to engage in another suit, this will not suffice to overcome an agency’s challenge to ripeness.”) (internal quotation marks and alterations omitted); *cf. Friends of Keeseville*, 859 F.2d at 237

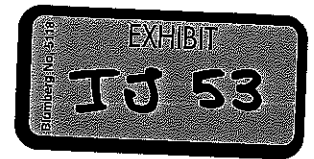
(petitioner's present injury is less significant when judicial relief "is deferred but not denied").

As a matter of prudence and judicial restraint, I therefore would dismiss this case as unripe. I respectfully dissent.¹

¹ The majority opinion quotes the FCC's NEPA regulations, which have been in place for 20 years and were coordinated with the Council on Environmental Quality; these regulations require the Commission to prepare an EIS when a proposed action "will have" a significant environmental impact. Maj. Op. at 9 (quoting 47 C.F.R. § 1.1314(a)); *see also* 47 C.F.R. § 1.1308(c). I do not interpret the majority opinion to suggest (much less hold) that the "will have" standard set forth in the FCC regulations is invalid. *See generally Nat'l Audubon Soc'y v. Hester*, 801 F.2d 405, 407 (D.C. Cir. 1986) ("will significantly affect"); *Sierra Club v. Dep't of Transp.*, 753 F.2d 120, 126 (D.C. Cir. 1985) ("will significantly affect"); *Sierra Club v. Peterson*, 717 F.2d 1409, 1412 (D.C. Cir. 1983) ("will significantly affect"); *Cabinet Mountains Wilderness/Scotchman's Peak Grizzly Bears v. Peterson*, 685 F.2d 678, 682 (D.C. Cir. 1982) (EIS required "when significant environmental impacts will occur"); *Env'tl. Def. Fund, Inc. v. EPA*, 489 F.2d 1247, 1255 (D.C. Cir. 1973) ("will have a significant effect").



NEWS



Federal Communications Commission
445 12th Street, S.W.
Washington, D. C. 20554

News Media Information 202 / 418-0500
Internet: <http://www.fcc.gov>
TTY: 1-888-835-5322

This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action.
See MCI v. FCC, 515 F 2d 385 (D.C. Circ 1974).

FOR IMMEDIATE RELEASE
February 20, 2008

Press Contact: Bruce Gottlieb (202 418-2000)

**STATEMENT OF COMMISSIONER MICHAEL J. COPPS IN RESPONSE TO THE
D.C. CIRCUIT'S DECISION VACATING THE FCC'S DENIAL AND DISMISSAL OF
THE GULF COAST MIGRATORY BIRDS PETITION**

For years, I have been disappointed with the FCC's failure to get serious about its environmental responsibilities. Now the D.C. Circuit has affirmed something this agency should have acknowledged a long time ago: that the National Environmental Protection Act, the Endangered Species Act, and the Migratory Bird Treaty Act require the FCC to take a hard look at the effects of communications towers on migratory birds.

Yesterday's decision should be a wake-up call to this agency. It is time to stop acting as if a problem will go away if we just keep kicking it down the road. As we move forward with the steps that the court has ordered us to take, I hope we will live up to the letter *and the spirit* of the environmental statutes Congress has given us. This means more than just checking the boxes required by the statutes—it means taking a thorough look at whether our rules and practices contribute to millions of needless bird deaths. I look forward to working with my colleagues to accomplish this important and time-sensitive work.

- FCC -



PUBLIC NOTICE



Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

News Media Information 202 / 418-0500
Internet: <http://www.fcc.gov>
TTY: 1-888-835-5322

DA 08-1040
May 1, 2008

OPENING OF DOCKET IN RESPONSE TO AMERICAN BIRD CONSERVANCY, INC. V. FCC, 516 F.3d 1027 (D.C. CIR. 2008)

WT Docket No. 08-61

By this Public Notice, the Wireless Telecommunications Bureau announces that, effective today, it is opening WT Docket No. 08-61 in response to the decision of the Court of Appeals for the District of Columbia in *American Bird Conservancy, Inc. v. FCC*, 516 F.3d 1027 (2008), in which the Court affirmed in part and vacated and remanded in part the Commission's 2006 *Memorandum Opinion and Order* relating to a petition filed by the American Bird Conservancy, the Forest Conservation Council, and the Friends of the Earth.¹

Presentations made in connection with WT Docket No.08-61 will be subject to the "permit-but-disclose" requirements set forth in § 1.1206 of the Commission's *ex parte* rules. Specifically, under the Commission's rules, the Commission's proceeding on remand is subject to treatment by the Commission as restricted for *ex parte* purposes under § 1.1208 of the Commission's rules, unless otherwise provided.² Because this proceeding implicates broadly applicable policy issues, we find, pursuant to Note 2 to § 1.1208 and consistent with § 1.1200(a), that this proceeding should be treated as permit-but-disclose under the *ex parte* rules.³ *Ex parte* presentations in this proceeding will be allowed but must be disclosed in accordance with the requirements of § 1.1206(b).⁴ Commenters seeking to protect the confidentiality of information produced shall follow the procedures set forth in § 0.459 of the Commission's rules.⁵

Parties making oral *ex parte* presentations in this proceeding are reminded that memoranda summarizing the presentation must contain the presentation's substance and not merely list the subjects discussed.⁶ More than a one-or two-sentence description of the views and arguments presented is generally required.⁷

¹ In the Matter of Petition by Forest Conservation Council, American Bird Conservancy and Friends of the Earth for National Environmental Policy Act Compliance, *Memorandum Opinion and Order*, 21 FCC Rcd 4462 (2006).

² 47 C.F.R. § 1.1208.

³ 47 C.F.R. § 1.1208 Note 2; *see also* 47 C.F.R. §§ 1.1200(a), 1.1206.

⁴ 47 C.F.R. § 1.1206(b).

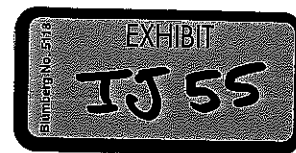
⁵ 47 C.F.R. § 0.459.

⁶ *See* "Commission Emphasizes the Public's Responsibilities in Permit-But-Disclose Proceedings," *Public Notice*, 15 FCC Rcd 19945 (2000).

To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

For questions regarding this public notice, please contact Jennifer Flynn, Wireless Telecommunications Bureau, at Jennifer.Flynn@fcc.gov or (202) 418-0612.

⁷ See 47 C.F.R. § 1.1206(b)(2). For further guidance regarding the requirements and content of *ex parte* submissions, see also Fact Sheet, "FCC's Ex Parte Rules," July 2001, http://www.fcc.gov/ogc/admain/ex_parte_factsheet.html. Other rules pertaining to oral and written presentations are set forth in § 1.1206(b) as well. *Id.* § 1.1206(b).



Scenic Road Defined

Connecticut has over the past several years designated several sections of its rural two-lane highways as Scenic Roads. This designation not only encourages sightseeing along the road but helps preserve it from modifications that would detract from its appearance, such as rerouting or widening.

Definition of Scenic Roads

"Public Act No. 87-280 authorizes the Commissioner of Transportation to designate state highways or portions thereof as scenic roads in consultation with the Commissioners of Environmental Protection and Economic & Community Development. "A scenic road is defined as any state highway that: 1) passes through agricultural land or abuts land on which is located a historic building or structure listed on the National Register of Historic Places or the State Register of Historic Places; or 2) affords vistas of marshes, shorelines, forests with mature trees or notable geologic or other natural features.

"The scenic road designation means that any further alteration or improvement on that section will maintain the character of the road."

Source: Connecticut Department of Transportation

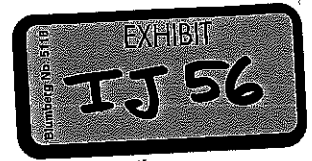
Designating a road "scenic" does not restrict DOT operations; it is a popular tool which has helped preserve the rural character of some highways.

In March 2001, Pomfret First Selectman David Patenaude, explaining how a proposed designation would affect Route 97 in that town, said that the state, not homeowners, were bound by the rules: namely, "[the DOT] cannot come in and take down trees or disturb stone walls."

US 7, from Kent-New Milford town line to Canaan-North Canaan town line, 28.61 miles (4 segments from 7/26/90 to 1/3/02)

Sources:

"Portions of Route 7 in Cornwall, Sharon, Salisbury and Canaan designated as scenic roads." ConnDOT press release, Jan. 25, 2002.



Town Meeting - Kellogg School Auditorium
Minutes
October 5, 2000

The Town Meeting was called to order by 1st Selectman Charles Lewis at 7:35 PM. Town Attorney Donna Brooks was in attendance, as were approx. 83 townspeople.

Ellery Sinclair nominated Fred Petersen as moderator. Seconded. Jeff Jasmine moved nominations be closed. Seconded. **Motion to nominate Fred Petersen carried.**

Town Clerk Mary Palmer read the Warning. Moderator suggested limiting debate to 2 minutes per person, if there were no objection. R. Neimeth suggested 10 minutes. P. Mechare moved that debate be limited to 3 minutes. Seconded. Carried.

Jeff Jasmine moved the following Resolution:

Be it resolved, That the Town of Canaan, in consideration of the dedicated service provided and to be provided to the community by the Falls Village Volunteer Fire Department, shall make a gift of land comprising between 8 to 9 acres with no less than 300 feet of road frontage to the Falls Village Volunteer Fire Department, Incorporated, which property is situated on the westerly side of Route 7 South and is the northerly portion of a 13.2 plus or minus acre parcel of land shown on Canaan Tax Map No. 15, Lot No. 11. The Town of Canaan will retain sufficient frontage and/or a right of way to the remaining acreage. The Board of Selectmen is authorized to designate the exact layout of the lot within these parameters. The following additional conditions of this gift shall apply:

1. The Falls Village Volunteer Fire Department, Inc. shall provide the Town of Canaan with a recordable survey of the property at its own expense;
2. The deed shall contain a provision that the subject parcel is to be the site for an emergency services center;
3. The deed shall contain a provision that ownership of the real estate shall revert automatically to the Town of Canaan if any of the following shall occur:
 - a. the emergency services center is not built by October 1, 2010, which term may be extended by legislative action;
 - b. The Falls Village Volunteer Fire Department, Inc. shall cease to operate as a fire department serving the community, although the mere change of legal entity or name shall not trigger the reversion to the town;
 - c. The Falls Village Volunteer Fire Department Inc. shall sell or otherwise transfer the property to any other party or entity, except that a transfer of the real estate to a successor entity which will operate as a fire department serving the community shall not trigger the reversion to the town;

4. The First Selectman shall be authorized to sign the deed to the Falls Village Volunteer Fire Department, Inc. which shall be a quit claim deed.

Seconded. Jeff Jasmine moved to amend the Resolution, paragraph 3 C, to have the Town Attorney add language that states if the Falls Village Department were to be succeeded by another entity providing fire service to the community of Falls Village, that that entity be a non-profit organization. Town Attorney Donna Brooks suggested adding the words "non-profit" to item 3-C to read as follows:

The Falls Village Volunteer Fire Department Inc. shall sell or otherwise transfer the property to any other party or entity, except that a transfer of the real estate to a non-profit successor entity which will operate as a fire department serving the community shall not trigger the reversion to the town.

Jeff Jasmine moved the Amendment. Seconded. Carried.

Town Clerk read the entire Resolution as amended. Jeff Jasmine moved the Resolution as amended. Seconded. Carried.

Item 2. That the National Iron Bank building be used for town hall offices, that the western side of the current town hall be used for town hall offices, and that the eastern side of the current town hall be rented. Discussion ensued by several different townspeople including an eloquent speech by former Town Clerk Sylvia Wismar regarding the urgent need for vault space and a plea for an affirmative vote for moving the Town Hall (followed by applause), Marc Mittaud - problem with using two separate buildings for Town Hall; Chuck Lewis - great concern with deterioration of National Iron Bank building as it sits vacant and his wish to pursue federal funding for ADA requirements of NIB building which might provide 85% of the funding to make building ADA compliant.

Town Clerk stated that a valid Petition containing more than the required 120 signatures to move item number 2 to a machine vote had been received. Jeff Jasmine moved item number 2 to a machine vote referendum on **Tuesday, October 17, 2000, from noon to 8 PM.** Question will read:

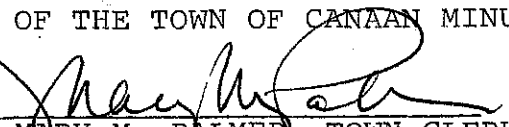
Shall the National Iron Bank building be used for town hall offices, the western side of the current town hall be used for town hall offices, and the eastern side of the current town hall be rented? Vote "Yes" or "No".

Seconded. Carried.

Motion to adjourn. Seconded. Carried.

Mary M. Palmer, Town Clerk

I CERTIFY THIS TO BE A TRUE COPY OF THE TOWN OF CANAAN MINUTES OF OCTOBER 5, 2000.


MARY M. PALMER, TOWN CLERK
(SEAL)



VOL. 60 PAGE 0578

QUIT CLAIM DEED
STATUTORY FORM

KNOW YE THAT, THE TOWN OF CANAAN, a Connecticut municipality of the County of Litchfield and State of Connecticut for valuable consideration paid, grants to THE FALLS VILLAGE VOLUNTEER FIRE DEPARTMENT, INCORPORATED of the Village of Falls Village, Town of Canaan, County of Litchfield and State of Connecticut,

with QUIT CLAIM COVENANTS

All that certain piece or parcel of land located in the Town of Canaan, County of Litchfield and State of Connecticut and more particularly described on SCHEDULE A attached hereto and made a part hereof.

Said premises are subject to any and all public utilities easements, building, building line and zoning regulations as may affect the same and to any and all provisions of ordinance, municipal regulations or public or private law, including, but not by way of limitation the effect, if any, of the Inland-Wetlands Act of the State of Connecticut.

Dated at Canaan, Connecticut this 22nd day of January, 2002.

Witnessed By:

TOWN OF CANAAN

Jean Jacobs
JEAN JACOBS

By Louis G. Timolat
Louis G. Timolat
First Selectman *Duly Authorized*

Donna J. Brooks
DONNA J. BROOKS

STATE OF CONNECTICUT

ss. Canaan

COUNTY OF LITCHFIELD

On this 22nd day of January 2002, personally appeared Louis G. Timolat who acknowledged that he is First Selectman of the Town of Canaan, and that he, as such Selectman being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the Town by himself as such Selectman.

Address of Grantee:

Donna J. Brooks
DONNA J. BROOKS

All that certain piece or parcel of land comprising 7.156 ± Acres (311,716 square feet) located on U.S. Route 7 - South, in the Town of Canaan, County of Litchfield and State of Connecticut, as shown on a map entitled "MAP PREPARED FOR FALLS VILLAGE VOLUNTEER FIRE DEPARTMENT, INC., U.S. ROUTE 7- SOUTH "FALLS VILLAGE" CANAAN, CONNECTICUT SCALE 1" = 50' August 4, 2001", which map was prepared by Mathias M. Keifer, L.L.S. #16101, and which map is on file with the land records of said Town of Canaan.

Said parcel is more particularly described as follows:

Commencing at a set iron pin at a point shown as Point B on said map, at the northeasterly corner of the premises conveyed herein, thence S 03°03'31" E 25.700 feet to an existing concrete highway monument; thence S 83°28'29" W 20.00 feet to an existing concrete highway monument; thence S 03°04'32" E 762.996 feet to an existing concrete highway monument which point marks the southeasterly corner of the premises conveyed herein; thence N 76°49'13" W 553.277 feet to a set iron pin marking the southwesterly corner of the premises conveyed herein; thence N 12°47'26" E 434.060 feet to a set iron pin; thence along a curve with a central angle of 06°19'20", a radius of 1500.31, and an arc length of 165.552 feet to a set iron pin shown as Point A on said map, at the northwesterly corner of the premises conveyed herein; thence along the centerline of the gully from Point A to Point B as shown on said map for approximately 400± feet to the point and place of beginning.


Together with a right of way to pass and repass over the existing gravel road located on "Remaining lands of The Town of Canaan" as shown on said map, part of which existing gravel road is an abandoned road known as Old Six Rod Road.

Subject to possible drainage rights as shown on said map.

The condition of this deed is that the property conveyed herein is to be used as a site for an emergency services center, and that ownership of the premises conveyed herein shall revert automatically to grantor Town of Canaan if any of the following shall occur:

1. If the emergency services center is not built by October 1, 2010, which term may be extended by action of the town legislative body; or
2. If the Falls Village Volunteer Fire Department, Inc. shall cease to operate as a fire department serving the community, although the mere change of form of legal entity or name shall not trigger the reversion to the grantor; or
3. If the Falls Village Volunteer Fire Department Inc. shall sell or otherwise transfer the property to any other party or entity, except that a transfer of the real estate to a nonprofit successor entity which will operate as a fire department serving the community shall not trigger the reversion to the town.

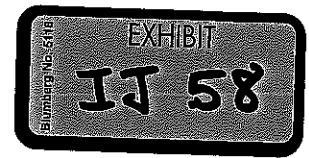
Received for recording
Town of Canaan Land Records
January 22, 2002 @ 1:15 PM
Volume 60, Pages 578-579
No conveyance tax received


Mary M. Palmer, Town Clerk

*I CERTIFY this to be a true copy of the document
Recorded in the Canaan Land Records.*


Mary M. Palmer, Town Clerk (Seal)

TOWN OF CANAAN FIRE COMMISSION
Falls Village, CT



MINUTES OF REGULAR MEETING
June 19, 2007

A regular meeting of the Canaan Fire Commission was called to order by Chairman Tom Gaisford on June 19, 2007 at 5:00 p.m. at the Falls Village Volunteer Fire Department, Inc. firehouse, 35 Railroad Street, Falls Village, CT.

PRESENT. Members present were Tom Gaisford, Curt Mechare, Hazel McGuire, Kevin Pollard and Faye Lawson. Also present was fire department Chief Dave Seney.

APPROVAL OF MINUTES. Minutes of the regular meeting of May 15, 2007 were unanimously approved in a motion by Curt, seconded by Hazel.

TREASURER'S REPORT. The treasurer's report through May 31, 2007 showing an unexpended balance of \$13,220.10 was received and reviewed.

COMMUNICATIONS. There were no communications.

PRESUBMITTED BILLS. Curt reported that the following bills were pre-submitted to the town treasurer:

Acct. 311	AT&T	\$ 58.04
	Comcast	<u>60.00</u>
	Total	\$ 118.04

BILLS FOR APPROVAL. The following bills were unanimously approved for payment on motion by Hazel, seconded by Kevin:

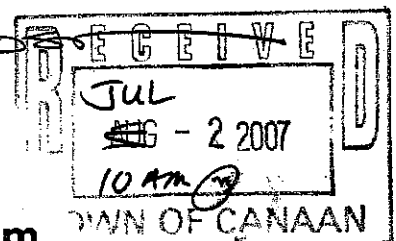
Acct. 112	Judith Dixon, Esquire	\$ 362.50
	<i>Legal - Review Verizon lease</i>	
Acct. 251	Applied Rescue	595.00
	<i>Service Lucas Tool (to be done in July)</i>	
Acct. 251	Jacobs Garage	276.00
	<i>Utility No. 8 brakes, master cylinder</i>	
Acct. 311	Pittsfield Communications	495.00
	<i>Utility No. 8, multi-unit charger</i>	
Acct. 313	Lindell Fuels	131.84
	<i>Propane</i>	
Acct. 410	Dennis Kobylarz, MD	1,500.00
	<i>Pending receipt of bill, approved up to \$1,500</i>	
Acct 510	Fire Training School	<u>300.00</u>
	<i>HazMat refresher course</i>	
	TOTAL	\$3,660.34

INSURANCE BILLS. Two insurance statements from Raynard & Peirce simply listing VFIS "Various" Auto, Accident and Sick for \$4,400 and VFIS Pkg Auto, Umb-Fire & Ambulance for \$10,800 were discussed and approved for payment from the 2007-2008 Commission budget contingent upon receiving a detailed bill, itemized by policy number and premium amount on motion by Faye, seconded by Kevin. Unanimous. Hazel will phone Raynard & Peirce and to have a representative from their office at our September meeting to go over the policies in detail.

ADJOURNMENT. There being no further business the meeting adjourned at 5:40 p.m. on motion by Curt, seconded by Hazel.

Respectfully submitted,

Faye Lawson
Faye Lawson, Secretary



NEXT SCHEDULED REGULAR MEETING:

Tuesday, July 17, 2007 at 5:00 p.m.

TOWN OF CANAAN FIRE COMMISSION
Falls Village, CT



MINUTES OF REGULAR MEETING
February 19, 2008

A regular meeting of the Canaan Fire Commission was called to order by Chairman Tom Gaisford on February 19, 2008 at 5:00 p.m. at the Falls Village Volunteer Fire Department, Inc. firehouse, 35 Railroad Street, Falls Village, CT.

PRESENT. Members present were Tom Gaisford, Curt Mechare, Kevin Pollard and Faye Lawson. Hazel McGuire was absent. Also present was fire department Chief Dave Seney.

APPROVAL OF MINUTES. On motion by Curt, seconded by Kevin, minutes of the regular meeting of January 15, 2008 were unanimously approved.

TREASURER'S REPORT. No treasurer's report was received.

COMMUNICATIONS. There were no communications.

PREPAID BILLS. The following bills had been submitted to the town treasurer for payment:

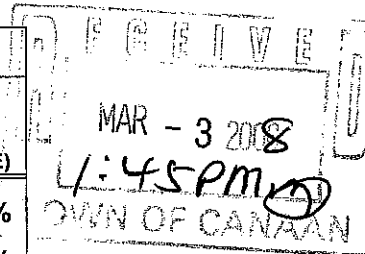
Acct. 311	Comcast	\$ 60.00
Acct. 311	AT&T	<u>68.74</u>
	TOTAL	\$128.74

BILLS FOR APPROVAL. On motion by Curt, seconded by Kevin, the following bills were unanimously approved for payment:

Acct. 251	Kinsley Power Systems	\$ 355.00
	<i>Annual maintenance on generator</i>	
Acct. 251	Sharon Fire Department	120.66
	<i>One-fifth share FIT test machine</i>	
Acct. 311	Motorola	<u>626.00</u>
	<i>10 batteries for portable radios</i>	
	<i>40 batteries for pagers</i>	
	TOTAL	\$1,101.66

FY 2008-2009 BUDGET REQUEST. On motion by Curt, seconded by Kevin, the following budget request was unanimously approved for submission to the Board of Selectmen:

DESCRIPTION	2007-2008			2008-2009	
	BUDGET REQUEST	EXPENSED 12/31/07	AVAILABLE 12/31/07	BUDGET REQUEST	INCREASE (DECREASE)
NEW EQUIPMENT	10,000.00	2,918.90	7,081.10	10,000.00	0.00%
EQUIPT. MAINTENANCE	10,000.00	2,278.51	7,721.49	10,000.00	0.00%
ELECTRIC	5,000.00	1,955.45	3,044.55	5,000.00	0.00%
FUEL OIL	4,200.00	392.77	3,807.23	4,200.00	0.00%
HYDRANTS/WATER	750.00	320.70	429.30	750.00	0.00%
COMMUNICATIONS	3,200.00	1,198.44	2,001.56	4,200.00	31.25%
PROPANE	260.00	0.00	260.00	260.00	0.00%
FIRE PONDS	500.00	0.00	500.00	500.00	0.00%
BUILDING					
MAINTENANCE	2,000.00	317.86	1,682.14	2,000.00	0.00%
PHYSICAL EXAMS	3,000.00	0.00	3,000.00	3,000.00	0.00%
TRAINING	2,000.00	1,500.00	500.00	2,500.00	25.00%

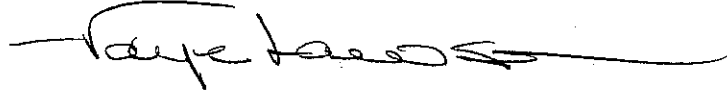


INSURANCE	25,500.00	19,663.07	5,836.93	25,500.00	0.00%
MILEAGE	500.00	0.00	500.00	500.00	0.00%
TOTAL	66,910.00	30,545.70	36,364.30	68,410.00	2.24%

UNEXPENDED BUDGET FUNDS FY 2007-2008. The chairman will again write the Board of Finance requesting that any budget funds unexpended at the end of the fiscal year be transferred to the town's New Fire Truck Fund.

ADJOURNMENT. There being no further business the meeting adjourned at 5:55 p.m. on motion by Curt, seconded by Kevin.

Respectfully submitted,

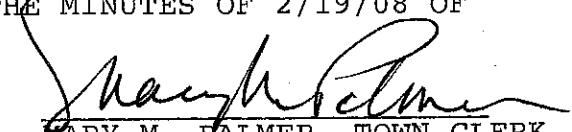


Faye Lawson, Secretary

NEXT SCHEDULED REGULAR MEETING:

Tuesday, March 18, 2008 at 5:00 p.m.

I CERTIFY THIS TO BE A TRUE COPY OF THE MINUTES OF 2/19/08 OF THE TOWN OF CANAAN FIRE COMMISSION.



MARY M. PALMER, TOWN CLERK
(SEAL)

Town of Canaan
108 Main Street
P.O. Box 47
Falls Village, CT 06031-0047



Connecticut Tax Town 021
AN EQUAL OPPORTUNITY EMPLOYER,
PROVIDER AND HOUSING ADVOCATE

Telephone: 860 824-0707
Fax: 860 824-4506
E-mail: canaan021selectmen@comcast.net



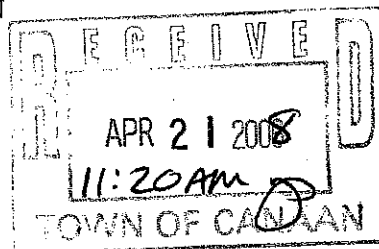
Town of Canaan
Special Board of Selectmen's Meeting
Wednesday, April 23, 2008 @10:30 AM
108 Main Street, Falls Village, Connecticut 06031

- I. Call to Order
- II. Update on Pool Project
- III. Consideration and Action on a contract with Berkshire Fence Company for Fencing and Gates Around the Pool
- IV. Consideration and Action on a contract with Drakely Swimming Pool Company for a Winter Mesh Pool Cover
- V. Discussion Regarding the State of Connecticut's Enhanced Municipal Employees Health Insurance Plan (MEHIP) Communication from Comptroller Nancy Wyman
- VI. Discussion and Action on the Proposed Telecommunication Tower at 188 Route 7 South - Falls Village Fire Department Property
- VII. Energy Saving Program
- VIII. Schedule for Town Hall on May 6, 2008 re: Region One Referendum
- IX. Adjournment

Submitted on Behalf of the Board of Selectmen
Patricia Allyn Mechare, First Selectman

I CERTIFY THIS TO BE A TRUE COPY OF
THE AGENDA FOR THE TOWN OF CANAAN
SELECTMEN'S MEETING OF 4/23/08

Mary M. Palmer, Town Clerk
(seal)



Town of Canaan
108 Main Street
P.O. Box 47
Falls Village, CT 06031-0047



Connecticut Tax Town 021
AN EQUAL OPPORTUNITY EMPLOYER,
PROVIDER AND HOUSING ADVOCATE
Telephone: 860 824-0707
Fax: 860 824-4506
E-mail: canaan021selectmen@comcast.net



Town of Canaan
Special Board of Selectmen's Meeting
Wednesday, April 23, 2008 @ 10:30 AM
108 Main Street, Falls Village, Connecticut 06031

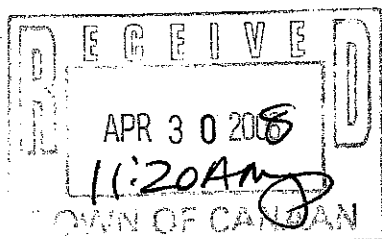
The special meeting of the Board of Selectmen was called to order at 10:33 AM by First Selectman Patricia Mechare. Selectman Peter Lawson and Selectman Charles Lewis were also in attendance.

In the first item of business on a motion by Lewis, seconded by Lawson it was moved to approve the proposal of Berkshire Fence Company of Sheffield, Massachusetts of \$6950 for the fencing at the pool site at 100 Route 63 and to authorize the first selectman to sign the proposal. Unanimous. In the second item of business the Board considered the advantages of a winter mesh pool cover for the pool. On a motion by Lewis, seconded by Lawson, it was moved to approve the purchase of the cover at the cost of \$11,850. Unanimous.

In the next item of business the State of Connecticut Employees Health Insurance Plan - Enhanced MEHIP was reviewed. It was the consensus that the Board did not have enough information; that others had raised questions regarding the actual cost savings and how and to what type of plan the Town would be held. Mechare informed the Board that State Comptroller, Nancy Wyman who forwarded the information would be at the next Northwestern Connecticut Council of Governments' meeting giving a presentation. Mechare indicated that she would speak to Region One Business Manager, Sam Herrick regarding these plans and report back to the Board.

There was discussion regarding the Board of Selectmen's input to the Siting Council in relation to the proposed telecommunications tower at 188 Route 7 South on the Falls Village Volunteer Fire Department land. Mechare was directed to write a letter of support to be reviewed individually by members of the Board before it was sent. Mechare reported that Jean Bronson was opened to the suggestion of a citizens' committee to address an energy savings program and was moving forward to determine who else might be interested in such a project.

There being no further business to come before the Board on a motion by Lawson, seconded by Lewis the meeting unanimously adjourned at 11:15 AM.



Respectfully submitted,

Patricia Allyn Mechare
First Selectman

I CERTIFY THIS TO BE A TRUE COPY OF THE
MINUTES OF THE 4/23/08 Selectmen's Meeting.

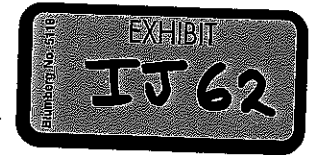
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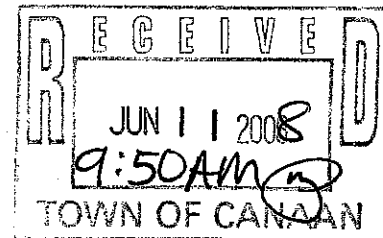
Telephone: 860 824-0707
Fax: 860 824-4506
E-mail: canaan021selectmen@comcast.net



Special Board of Selectmen's Meeting
Thursday, June 12, 2008 @ 10:00 AM
108 Main Street, Falls Village, Connecticut 06031

- I. Call to Order
- II. Consideration and Decision Regarding a Date for a Special Town Meeting
- III. Discussion, Consideration and Decision Regarding Septic System Bids
at 188 Route 7 South, FVVFD
- IV. Discussion and Consideration for appointment of Lara Mittaud as Animal
Control Officer for the Town of Canaan
- V. Adjournment

*Submitted on behalf of the Board of Selectmen
Patricia Kelly Mechara, First Selectman
John Sep Mechara*



I CERTIFY THIS TO BE A TRUE COPY OF THE AGENDA
OF THE BOARD OF SELECTMEN'S MEETING OF 6/12/2008

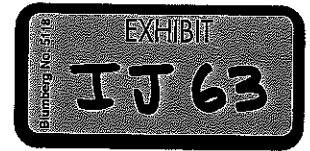
Mary M. Palmer
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Special Board of Selectmen's Meeting
Thursday, June 12, 2008 @ 10:00 AM
108 Main Street, Falls Village, Connecticut 06031

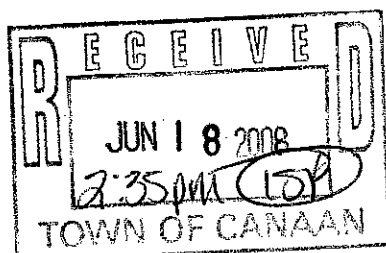
The Special Board of Selectmen's meeting was called to order at 10:04 AM by First Selectman Patricia Mechare. Also in attendance were Selectman Peter Lawson and Selectman Charles Lewis.

In the first item of business on a motion by Lawson, seconded by Lewis it was moved to set the date of June 26, 2008 @ 6:30 PM for a special town meeting to be held at 108 Main Street, Falls Village, Connecticut. Unanimous.

In the second item of business the Board reviewed the recommendation of the Falls Village Volunteer Fire Department to approve the bid of W.D. Hewins and Sons for the installation of the septic system at 188 Route 7 South in the amount of \$8650 as being in the best interest of the fire department. On a motion by Lewis, seconded by Lawson it was moved to accept the bid of W.D. Hewins of \$8650 for the installation of the septic system at 188 Route 7 S as being in the best interest of the fire department. Unanimous.

In the last item of business the Board discussed the replacement of Lucien Mittaud as the Town of Canaan Animal Control Officer. Interest in the position had been expressed by Lara Mittaud. Since Ms Mittaud has a working knowledge of the position, is willing to obtain training and work with the Richard Gregan at the State level the Board felt she would be a good replacement choice. On a motion by Lewis, seconded by Lawson it was moved to appoint Lara Mittaud as the Town of Canaan Animal Control Officer. Unanimous. The Board directed Mechare to notify Ms Mittaud and indicate that quarterly reports be submitted to the Board of Selectmen indicating the activity of the Animal Control Officer in terms of the amount of time spent on calls, complaints and the like.

With no further business to come before the Board on a motion by Lewis, seconded by Lawson the meeting unanimously adjourned at 10:19 AM.



Respectfully submitted,
Patricia Allyn Mechare
Patricia Allyn Mechare
First Selectman

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MINUTES OF THE BOARD OF SELECTMEN MEETING
OF 6/12/2008.

Mary M. Palmer
Mary M. Palmer, Town Clerk
(Seal)

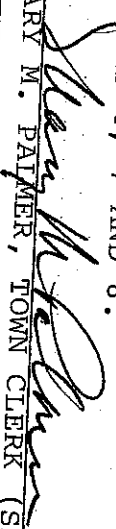
TOWN OF CANAAN MUNICIPAL BUDGET

FY 2008 - 2009

Prepared by the Board of Selectmen
For the Board of Finance
May 12, 2008

I CERTIFY THIS TO BE A TRUE COPY OF/THE TOWN OF CANAAN
BUDGET FOR FY 2008-2009. SPECIFICALLY, THIS CERTIFIES
THE COVER, AND PAGES 4, 7 AND 8.

CERTAIN PAGES OF


MARY M. PALMER, TOWN CLERK (SEAL)



1012 Zoning Board of Appeals
 1014 REGISTRAR OF VOTERS

	Amended Budget 2006-07	2006-07 Budget Act. Audited	2007-08 Approved Budget	Amended Budget 2007-08	2007-08 Estimate of Expenditures	2008-09 Estimate of Expenditures	Board of Finance Recommendation	Proposed Increase/Decrease
Salaries	\$800.00	\$0.00	\$800.00	\$800.00	\$500.00	\$800.00	\$800.00	\$0.00
Election/Primary Expenses								
Referendum Expenses								
Office Expense	\$7,250.00	\$7,176.00						
Voting Machine Expense	\$5,000.00	\$5,163.08						
Capital Reserve	\$0.00	\$0.00						
Legal Expense	\$300.00	\$0.00						
Dues/Training	\$500.00	\$292.90						
Computer Service	\$1,000.00	\$526.64						
Total	\$100.00	\$1,000.00	\$800.00	\$800.00	\$500.00	\$800.00	\$800.00	\$0.00

1015 INSURANCE

CIRMA - Property/Liability Insuranc	\$14,650.00	\$15,576.66	\$0.00	\$100.00	\$100.00	\$100.00	\$100.00	\$5,481.00
Workmens Compensation	\$18,120.00	\$21,811.00	\$26,000.00	\$700.00	\$700.00	\$700.00	\$700.00	\$1,000.00
Excess Liability	\$0.00	\$13,005.80	\$18,120.00	\$100.00	\$100.00	\$100.00	\$100.00	\$1,000.00
Public Officials	\$5,756.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$300.00
Bonding	\$600.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,500.00
Total	\$41,426.00	\$53,381.00	\$600.00	\$18,100.00	\$24,700.00	\$29,681.00	\$29,681.00	\$0.00

1016 WAGES/BENEFITS

Wages - Highway	\$136,000.00	\$132,574.18	\$141,950.00	\$141,950.00	\$158,000.00	\$158,000.00	\$158,000.00	\$0.00
Overtime - Highway	\$20,000.00	\$8,853.74	\$20,300.00	\$20,300.00	\$22,650.00	\$22,650.00	\$22,650.00	\$0.00
Pension Plan	\$14,800.00	\$13,639.27	\$17,600.00	\$17,600.00	\$15,000.00	\$15,000.00	\$15,000.00	\$0.00
Social Security (7.625%)	\$30,000.00	\$25,291.21	\$30,000.00	\$30,000.00	\$33,500.00	\$33,500.00	\$33,500.00	\$0.00
FV/FD & Rescue Squad Pension	\$2,250.00	\$3,075.00	\$30,000.00	\$30,000.00	\$2,250.00	\$2,250.00	\$2,250.00	\$0.00
Health Insurance	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$0.00
Total	\$275,963.00	\$254,666.24	\$290,800.00	\$290,800.00	\$302,250.00	\$302,250.00	\$302,250.00	\$0.00

1017 CAPITAL IMPROVEMENTS

Computer/Office Automation	\$1,000.00	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$1,000.00	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

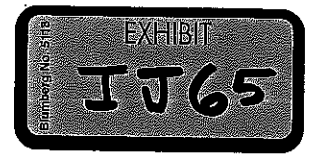
Municipal Budget - FY 2008 - 2009

Municipal Budget - FY 2008 - 2009

	Amended Budget 2006-07	2006-07 Budget Act. Audited	2007-08 Approved Budget	Amended Budget 2007-08	2007-08 Estimate of Expenditures	2008-09 Estimate of Expenditures	Board of Finance Recommend.	Proposed Increase/ Decrease
1028 NON-RECURRING CAPITAL ACCOUNTS								
Fire Truck Reserve	\$15,000.00	\$15,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$0.00
Fire Comm. Equipment Reserve	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$0.00
Heavy Equipment Reserve	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$0.00
Truck Reserve	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$0.00
107 Main St. Maint Reserve			\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$0.00
Bridge Maint/Repair Reserve			\$4,000.00	\$4,000.00	\$4,000.00	\$4,000.00	\$4,000.00	\$0.00
Painting Reserve			\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$0.00
Assessors Revaluation Res.			\$42,000.00	\$42,000.00	\$42,000.00	\$10,000.00	\$10,000.00	-\$32,000.00
Rewrite of Regs Reserve			\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$0.00
Registrars Capital Reserve			\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$0.00
Environmental Cleanup Reserve			\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$0.00
Capital Improve/Salt Shed			\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Computer/Office Automation			\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$0.00
Bulky Waste Building Res.			\$1,000.00	\$1,000.00	\$1,000.00	\$5,000.00	\$5,000.00	\$5,000.00
Total	\$46,000.00	\$46,000.00	\$113,000.00	\$113,000.00	\$113,000.00	\$86,000.00	\$86,000.00	-\$27,000.00
				New FY 08-09				
1202 107 MAIN ST PROPERTY								
Electric	\$5,000.00	\$5,508.93	\$6,300.00	\$6,300.00	\$5,800.00	\$6,200.00	\$6,200.00	-\$100.00
Fuel Oil	\$5,000.00	\$4,871.90	\$5,125.00	\$5,125.00	\$5,200.00	\$6,875.00	\$6,875.00	\$1,750.00
Cleaning	\$2,700.00	\$2,774.25	\$2,800.00	\$2,800.00	\$2,800.00	\$2,884.00	\$2,884.00	\$84.00
Water	\$225.00	\$214.42	\$280.00	\$280.00	\$280.00	\$280.00	\$280.00	\$0.00
Building Maint.	\$4,850.00	\$4,357.46	\$3,500.00	\$3,500.00	\$5,300.00	\$3,500.00	\$3,500.00	\$0.00
Maint. Reserve/Capital Improver	\$2,500.00	\$2,500.00						
Total	\$20,275.00	\$20,226.96	\$18,005.00	\$18,005.00	\$19,380.00	\$19,739.00	\$19,739.00	\$1,734.00
								Moved to #1028
2001 FIRE COMMISSION								
New Equipment	\$9,000.00	\$14,615.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$0.00
Trucks/Equipment	\$8,000.00	\$11,841.81	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$0.00
Heat - Fuel Oil	\$4,200.00	\$3,883.63	\$4,200.00	\$4,200.00	\$2,800.00	\$4,125.00	\$4,125.00	-\$75.00
Electric	\$5,000.00	\$2,790.96	\$5,000.00	\$5,000.00	\$4,500.00	\$5,000.00	\$5,000.00	\$0.00
Propane	\$260.00	\$131.84	\$260.00	\$260.00	\$260.00	\$260.00	\$260.00	\$0.00
Hydrants	\$750.00	\$479.75	\$750.00	\$750.00	\$750.00	\$750.00	\$750.00	\$0.00
Communications	\$3,200.00	\$3,120.72	\$3,200.00	\$3,200.00	\$3,200.00	\$4,200.00	\$4,200.00	\$1,000.00
Fire Ponds	\$500.00	\$0.00	\$500.00	\$500.00	\$0.00	\$500.00	\$500.00	\$0.00

Municipal Budget - FY 2008 - 2009

	Amended Budget 2006-07	2006-07 Budget Act. Audited	2007-08 Approved Budget	Amended Budget 2007-08	2007-08 Estimate of Expenditures	2008-09 Estimate of Expenditures	Board of Finance Recommend.	Proposed Increase/Decrease
3001 ROAD MAINTENANCE								
Misc. New Equipment	\$4,000.00	\$4,451.20	\$4,000.00	\$4,000.00	\$4,000.00	\$4,000.00	\$4,000.00	\$0.00
Truck Repairs/Parts	\$25,000.00	\$26,202.89	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$0.00
Fuel, Oil & Lube	\$17,000.00	\$18,010.88	\$17,000.00	\$17,000.00	\$17,000.00	\$19,000.00	\$19,000.00	\$2,000.00
Oiling & Sealing	\$35,000.00	\$35,512.85	\$40,000.00	\$40,000.00	\$40,000.00	\$43,200.00	\$43,200.00	\$3,200.00
Bituminous Materials	\$5,000.00	\$5,302.15	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$0.00
Deicing	\$38,000.00	\$36,900.75	\$38,000.00	\$38,000.00	\$38,000.00	\$48,000.00	\$48,000.00	\$10,000.00
Bridge/Culvert Repair	\$7,000.00	\$1,801.52	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$0.00
Paving/Capital Improvement	\$85,000.00	\$90,972.09	\$85,000.00	\$85,000.00	\$85,000.00	\$85,000.00	\$85,000.00	\$0.00
Road Maint/Construct/Drainage	\$9,000.00	\$9,001.04	\$9,000.00	\$9,000.00	\$9,000.00	\$9,000.00	\$9,000.00	\$0.00
Equipment Rental	\$1,000.00	\$0.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$0.00
Sub-Contracting - General	\$3,000.00	\$0.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$0.00
Tree Removal	\$6,000.00	\$4,200.00	\$6,000.00	\$6,000.00	\$6,000.00	\$6,000.00	\$6,000.00	\$0.00
Total	\$235,000.00	\$232,355.37	\$236,000.00	\$236,000.00	\$236,000.00	\$251,200.00	\$251,200.00	\$15,200.00
3002 TOWN GARAGE								
Telephone	\$800.00	\$795.78	\$1,260.00	\$1,260.00	\$1,260.00	\$1,260.00	\$1,260.00	\$0.00
Electric	\$2,400.00	\$2,716.03	\$2,800.00	\$2,800.00	\$2,800.00	\$2,970.00	\$2,970.00	\$170.00
Fuel Oil	\$5,000.00	\$4,465.64	\$4,510.00	\$4,510.00	\$4,510.00	\$6,050.00	\$6,050.00	\$1,540.00
Water	\$200.00	\$144.13	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$0.00
Building Maint.	\$3,500.00	\$4,355.43	\$4,000.00	\$4,000.00	\$4,000.00	\$4,500.00	\$4,500.00	\$500.00
Environmental Cleanup Fund	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	Moved to #1028	\$1,000.00	\$0.00
Environmental Issues	\$1,000.00	\$648.00	\$1,000.00	\$1,000.00	\$1,000.00	Moved to #1028	\$1,000.00	\$0.00
Capital Improve/Salt Shed	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	Moved to #1028	\$0.00	\$0.00
Shop Supplies	\$4,000.00	\$4,263.96	\$4,000.00	\$4,000.00	\$4,000.00	\$4,000.00	\$4,000.00	\$0.00
Office Supplies	\$500.00	\$32.97	\$500.00	\$500.00	\$500.00	\$500.00	\$500.00	\$0.00
Continued Education	\$1,000.00	\$260.00	\$1,000.00	\$1,000.00	\$200.00	\$1,000.00	\$1,000.00	\$0.00
Uniforms	\$2,900.00	\$2,893.39	\$2,900.00	\$2,900.00	\$2,900.00	\$2,900.00	\$2,900.00	\$0.00
Total	\$22,300.00	\$21,575.33	\$22,270.00	\$22,270.00	\$22,270.00	\$21,310.00	\$24,480.00	\$2,210.00



**Revised and Amended
Resolution No. 15**

COMMITTEE ASSIGNMENT: Health and Safety
Re: Study of Firefighters Exposed to Radio Frequency (RF)
Radiation from Cell Towers/Masts

1 WHEREAS, fire stations across the United States
2 and Canada are being sought by wireless companies as
3 base stations for the antennas and towers for the
4 conduction of cell phone transmissions; and

5 WHEREAS, many firefighters who are living with
6 cell towers on or adjacent to their stations are paying a
7 substantial price in terms of physical and mental health.
8 As first responders and protectors of the general public,
9 it is crucial that firefighters are functioning at optimal
10 cognitive and physical capacity at all times; and

11 WHEREAS, the brain is the first organ to be
12 affected by RF radiation and symptoms manifest in a
13 multitude of neurological conditions including migraine
14 headaches, extreme fatigue, disorientation, slowed
15 reaction time, vertigo, vital memory loss and attention
16 deficit amidst life threatening emergencies; and

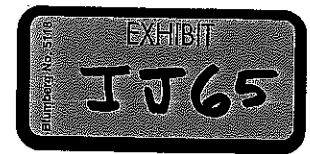
17 WHEREAS, most of the firefighters who are
18 experiencing symptoms can attribute the onset to the
19 first week(s) these towers/antennas were activated; and

20 WHEREAS, RF radiation is emitted by these
21 cellular antennas and RF radiation can penetrate every
22 living cell, including plants, animals and humans; and

23 WHEREAS, both the U. S. and Canadian
24 governments established regulatory limits for RF
25 radiation based on thermal (heat) measurements with
26 no regard for the adverse health effects from
27 non-thermal radiation which is proven to harm the
28 human brain and immune system; and

29 WHEREAS, the U. S. Environmental Protection
30 Agency stated in a July 16, 2002, letter, "Federal
31 health and safety agencies have not yet developed
32 policies concerning possible risk from long-term,
33 non-thermal exposures. The FCC's exposure
34 guideline is considered protective of effects arising
35 from a thermal mechanism (RF radiation from cell
36 towers is non-thermal) but not from all possible
37 mechanisms. Therefore, the generalization by many
38 that the guidelines protecting human beings from
39 harm by any or all mechanisms is not justified"; and

40 WHEREAS, an Expert Panel Report requested
41 by the Royal Society of Canada prepared for Health
42 Canada (1999) stated that, "Exposure to RF fields at



**Revised and Amended
Resolution No. 15**

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Re: Study of Firefighters Exposed to Radio Frequency (RF)
Radiation from Cell Towers/Masts

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39 harm by any or all mechanisms is not justified"; and

40 WHEREAS, an Expert Panel Report requested
41 by the Royal Society of Canada prepared for Health
42 Canada (1999) stated that, "Exposure to RF fields at

43 intensities far less than levels required to produce
44 measurable heating can cause effects in cells and
45 tissues. These biological effects include alterations
46 in the activity of the enzyme ornithine decarboxylase,
47 in calcium regulation, and in the permeability of the
48 blood-brain barrier. Some of these biological effects
49 brought about by non-thermal exposure levels of RF
50 could potentially be associated with adverse health
51 effects”; and

52 WHEREAS, based on concerns over growing
53 scientific evidence of dangers from RF radiation, an
54 international conference was convened in Salzburg,
55 Austria, in the summer of 2000 where renowned
56 scientists declared the upper-most RF radiation
57 exposure limit from a tower-mast should be $1/10^{\text{th}}$ of
58 1 microwatt (Note that $1/10^{\text{th}}$ of 1 microwatt is 10,000
59 times lower than the uppermost limit allowed by the
60 U. S. or Canada.); and it should be noted this limit was
61 set because of study results showing brain wave
62 changes at $1/10^{\text{th}}$ of 1 microwatt; and

63 WHEREAS, in a recently cleared paper by Dr.
64 Richard A. Albanese of the U. S. Air Force, a
65 highly recognized physician in the area of the impact of
66 radiation on the human body, Dr. Albanese states, “I
67 would ask a good faith effort in achieving as low
68 exposure rates as are possible within reasonable
69 financial constraints. Also I would fund targeted
70 studies using animal subjects and human groups living
71 or working in high radiation settings or heavy cellular
72 phone users, emphasizing disease causations. I urge
73 acceptance of the ideal that there should be no
74 unmonitored occupational or environmental exposures
75 whose associated disease rates are unknown.” (The
76 opinions expressed herein are those of Dr. Albanese,
77 and do not reflect the policies of the United States
78 Air Force.); and

79 WHEREAS, recently a study, not affiliated with
80 the wireless industry, was conducted of firefighters
81 exposed to RF radiation from cell towers/antennas
82 affixed to their stations. The study revealed brain
83 damage that can be differentiated from chemical
84 causation (such as inhalation of toxic smoke) suggesting
85 RF radiation as the cause of the brain damage found on
86 SPECT scans; and

87 WHEREAS, firefighters are the protectors of
88 people and property and should be protected under the
89 Precautionary Principle of Science and therefore, unless
90 radiation is proven safe and harmless, cellular
91 antennas should not be placed on or near fire stations;
92 therefore be it

93 RESOLVED, That the IAFF shall seek funding for an
94 initial U. S. and Canadian study with the highest scientific
95 merit and integrity, contrasting firefighters with residence
96 in stations with towers to firefighters without similar
97 exposure; and be it further

98 RESOLVED, That in accordance with the results of
99 the study, the IAFF will establish protective policy
100 measures with the health and safety of all firefighters
101 as the paramount objective; and be it further

102 RESOLVED, That the IAFF oppose the use of fire stations
103 as base stations for antennas and towers for the conduction
104 of cell phone transmissions until such installations are
105 proven not to be hazardous to the health of our members.

Submitted by: Local 3368, Carpinteria-Summerland, California
Cost Estimate: None

COMMITTEE RECOMMENDATION: Adopt as Revised

CONVENTION ACTION: Adopted as Revised and Amended



PREAMBLE

The Town of Canaan (also known as Falls Village) is a classic small New England town which is located along the banks of the Housatonic River, in the foothills of Northwestern Connecticut.

The Planning & Zoning Commission has prepared these Zoning Regulations to help protect our town's proud country heritage and rural character as well as prepare for our future needs as a growing municipality.

These Zoning Regulations are intended to provide standards and guidance for land use activities in Canaan (Falls Village). The Regulations are intended to help maintain and enhance community character and help protect the public health, safety, and welfare.

The Regulations are intended to define reasonable standards for the use of property. These standards strike a balance between what people want to be able to do on their own property and what people think their neighbors ought to be able to do on their property.

The Planning and Zoning Commission, in recognition of the need to balance numerous factors when establishing or revising Zoning Regulations, has given careful consideration to the following:

- 1. Protecting natural resources;*
- 2. Protecting existing properties and neighborhoods;*
- 3. Allowing for uses and activities that will be in keeping with overall community standards and meet community needs;*
- 4. Ensuring the reasonableness and legality of regulatory provisions; and*
- 5. Furthering implementation of the Plan of Conservation and Development.*

It is the general purpose and intent of these Regulations to foster the use and development of land in an orderly manner by both private and public interests.

These Regulations provide standards and procedures by which development of property within the Town may be configured in order to maintain the character of the Town, the economic value of property, and the general welfare of the citizens.

These Regulations are intended to be a dynamic document, not a static document. It is anticipated that these Regulations will be regularly reviewed and updated, as necessary, to anticipate and reflect the ever changing needs of the community and to guide land use activities in Canaan (Falls Village) in ways that will continue to maintain and enhance community character and protect the public health, safety, and welfare.

9.2. Telecommunication Tower Guidelines

1. Cooperation With Siting Council

The Town of Canaan (Falls Village) understands that the authority to regulate new towers for wireless telecommunication services rests with the Connecticut Siting Council and the Commission pledges to work with the Connecticut Siting Council to guide the siting of new towers for wireless telecommunications in Falls Village.

2. Community Participation

- a. To provide community input on proposed new towers, it is the intent of the Town to schedule a public informational meeting when notified of a pending application by a carrier or by the Siting Council.
- b. Parties wishing to locate a new tower within the town should fly a balloon from the proposed site so that visual impacts may be evaluated from various locations prior to the public informational meeting.
- c. Following this meeting, the Town of Canaan (Falls Village) will prepare and provide testimony to the Siting Council for use during the permitting process based on:
 - i. information provided by the potential applicant,
 - ii. input received at the public informational meeting, and
 - iii. other information collected.

3. Locational Guidelines

The Commission requests that applicants and the Siting Council consider the following locational preferences for new towers:

- a. New towers should only be located to serve areas lacking adequate wireless telecommunication service as identified by the Connecticut Siting Council.
- b. Applications should include a review of alternate locations.
- c. Applications should include an analysis of whether there would be fewer visual and community impacts from:
 - i. fewer towers of sufficient height to allow for co-location of multiple carriers and greater coverage from each tower, or
 - ii. more towers of lower height to allow for greater capacity from each tower and less visual impact.
- d. Establish locations least disruptive to the public health, safety, and welfare of Canaan (Falls Village) and consistent with the Plan of Conservation and Development.

4. Resource Protection Guidelines

The Commission requests that applicants and the Siting Council consider the following resource protection preferences for new towers:

- a. The proposed location should preserve the integrity of environmentally sensitive areas including unique wildlife habitats, wetlands, historic, and archaeological resources.
- b. A location within or adjacent to any officially designated historic areas including the Canaan (Falls Village) Historic District and any resource on the National Register of Historic Places should be avoided.
- c. Protect the town's visual quality and minimize any adverse visual impacts through proper design, siting, and screening.
- d. There should be no detrimental impact to any scenic area, vista, ridgeline, wildlife corridor, or significant geologic or natural features within Canaan (Falls Village) including but not limited to:
 - i. Canaan Mountain and Cobble Hill,
 - ii. the Appalachian Trail,
 - iii. Robbin's Swamp,
 - iv. Housatonic River and the Great Falls.
- e. Views from any designated scenic roads should be protected.
- f. The use of public open space areas including parks and recreational facilities should not be compromised.

5. Design Guidelines

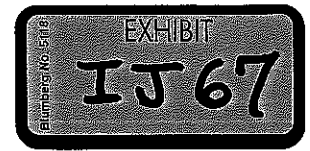
The Commission requests that applicants and the Siting Council consider the following design preferences for new towers:

- a. The use of stealth technologies should be encouraged.
- b. Tower locations should include an adequate fall zone that will protect public safety and potential damage to adjacent properties.
- c. Signage should not be permitted except what may be clearly necessary for public safety.
- d. Lighting should not be permitted except what may be clearly necessary for public safety.
- e. Site planning standards should include minimizing impervious surfaces, avoiding soil erosion and runoff problems, maintaining natural buffers, providing for security, and safe access management.

6. Maintenance Guidelines

The Commission requests that applicants and the Siting Council consider the following maintenance preferences for new towers:

- a. Provision should be made for removal of the tower and associated equipment if it becomes obsolete or is no longer being used for the siting of wireless telecommunication equipment.
- b. Provision should be made for the reduction of tower height and visibility if alternative technologies make proposed facilities outdated.



BIRDS PROTECTED BY THE MIGRATORY BIRD TREATY ACT

List of Migratory Birds

This is an adaptation of the List of Migratory Birds that appears in Title 50 of the Code of Federal Regulations, Section 10.13. The major difference between this list and the "official" published list is that the scientific and common (English) names have been changed to conform to the most recent taxonomy (as reflected in the 1983 AOU Check-list and published supplements through 1995). In cases where a name in the following list differs from that in the CFR list, the name in the CFR list is cross-referenced in parentheses. EXAMPLES: in the CFR list, the Yellow Bittern is listed as Chinese Bittern and the scientific name of the Crested Caracara (*Caracara plancus*) is given as *Polyborus plancus*. The referenced species are the same in both lists, only the nomenclature has changed.

Alphabetical List

Taxonomic List

Alphabetical List

[A] [B] [C] [D] [E] [F] [G] [H] [I]
[J] [K] [L] [M] [N] [O] [P] [Q] [R] [S] [T] [U] [V] [W] [X] [Y] [Z]

Accentor, Siberian, *Prunella montanella*
Albatross, Black-footed, *Diomedea nigripes*
 Laysan, *Diomedea immutabilis*
 Short-tailed, *Diomedea albatrus*
 Yellow-nosed, *Diomedea chlororhynchos*
Anhinga, Anhinga *anhinga*
Ani, Groove-billed, *Crotophaga sulcirostris*
 Smooth-billed, *Crotophaga ani*
Auklet, Cassin's, *Ptychoramphus aleuticus*
 Crested, *Aethia cristatella*
 Least, *Aethia pusilla*
 Parakeet, *Cyclorhynchus psittaculus*
 Rhinoceros, *Cerorhinca monocerata*
 Whiskered, *Aethia pygmaea*
Avocet, American, *Recurvirostra americana*

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Barn-Owl, Common (see Owl, Barn)
Beardless-Tyrannulet, Northern, *Camptostoma imberbe*
Becard, Rose-throated, *Pachyramphus aglaiae*
Bittern, American, *Botaurus lentiginosus*
 Chinese (see Bittern, Yellow)
 Least, *Ixobrychus exilis*

Yellow (=Chinese), *Ixobrychus sinensis*
 Schrenk's, *Ixobrychus eurhythmus*
 Black-Hawk, Common, *Buteogallus anthracinus*
 Blackbird, Brewer's, *Euphagus cyanocephalus*
 ✓ Red-winged, *Agelaius phoeniceus*
 Rusty, *Euphagus carolinus*
 Tawny-shouldered, *Agelaius humeralis*
 Tricolored, *Agelaius tricolor*
 Yellow-headed, *Xanthocephalus xanthocephalus*
 Yellow-shouldered, *Agelaius xanthomus*
 ✓ Bluebird, Eastern, *Sialia sialis*
 Mountain, *Sialia currucoides*
 Western, *Sialia mexicana*
 Bluethroat, *Luscinia svecica*
 Bobolink, *Dolichonyx oryzivorus*
 Booby, Blue-footed, *Sula nebouxii*
 Brown, *Sula leucogaster*
 Masked, *Sula dactylatra*
 Red-footed, *Sula sula*
 Brambling, *Fringilla montifringilla*
 Brant, *Branta bernicla*
 Bufflehead, *Bucephala albeola*
 Bullfinch, Eurasian, *Pyrrhula pyrrhula*
 Puerto Rican, *Loxigilla portoricensis*
 ✓ Bunting, Indigo, *Passerina cyanea*
 ✓ Lark, *Calamospiza melanocorys*
 Lazuli, *Passerina amoena*
 McKay's, *Plectrophenax hyperboreus*
 Painted, *Passerina ciris*
 Pallas' (=Reed-bunting, Pallas'), *Emberiza pallasi*
 Reed, (=Reed-Bunting, Common), *Emberiza schoeniculus*
 Rustic, *Emberiza rustica*
 Snow, *Plectrophenax nivalis*
 Varied, *Passerina versicolor*
 Bushtit, *Psaltriparus minimus*

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Canvasback, *Aythya valisneria*
 Caracara, Crested, *Caracara (=Polyborus) plancus*
 ✓ Cardinal, Northern, *Cardinalis cardinalis*
 ✓ Carib, Green-throated, *Eulampis holosericeus*
 ✓ Catbird, Gray, *Dumetella carolinensis*
 ✓ Chat, Yellow-breasted, *Icteria virens*
 ✓ Chickadee, ✓ Black-capped, *Parus atricapillus*
 Boreal, *Parus hudsonicus*
 Carolina, *Parus carolinensis*
 Chestnut-backed, *Parus rufescens*
 Mexican, *Parus sclateri*
 Mountain, *Parus gambeli*
 Chuck-will's-widow, *Caprimulgus carolinensis*
 Condor, California, *Gymnogyps californianus*
 Coot, American, *Fulica americana*
 Caribbean, *Fulica caribaea*
 Eurasian, *Fulica atra*
 Hawaiian (=American), *Fulica alai (=americana)*
 Cormorant, Brandt's, *Phalacrocorax penicillatus*
 Double-crested, *Phalacrocorax auritus*
 Great, *Phalacrocorax carbo*
 Neotropic (=Olivaceous), *Phalacrocorax brasilianus (=olivaceous)*
 Olivaceous (see Cormorant, Neotropic)
 Pelagic, *Phalacrocorax pelagicus*
 Red-faced, *Phalacrocorax urile*

- ✓ Cowbird, *Molothrus aeneus*
- Brown-headed, *Molothrus ater*
- Shiny, *Molothrus bonariensis*
- Crake, Corn, *Crex crex*
- Yellow-breasted, *Porzana flaviventer*
- Crane, Common, *Grus grus*
- Sandhill, *Grus canadensis*
- Whooping, *Grus americana*
- Creeper, Brown, *Certhia americana*
- Crossbill, Red, *Loxia curvirostra*
- White-winged, *Loxia leucoptera*
- ✓ Crow, American, *Corvus brachyrhynchos*
- Fish, *Corvus ossifragus*
- Hawaiian, *Corvus hawaiiensis*
- Mexican, *Corvus imparatus*
- Northwestern, *Corvus caurinus*
- White-necked, *Corvus leucognaphalus*
- Cuckoo, Black-billed, *Coccyzus erythrophthalmus*
- Common, *Cuculus canorus*
- Mangrove, *Coccyzus minor*
- Oriental, *Cuculus saturatus*
- Yellow-billed, *Coccyzus americanus*
- Curlew, Bristle-thighed, *Numenius tahitiensis*
- Eskimo, *Numenius borealis*
- Far Eastern, *Numenius madagascariensis*
- Least (see Curlew, Little)
- Little (=Least), *Numenius minutus*
- Long-billed, *Numenius americanus*

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- Dickcissel, *Spiza americana*
- Dipper, American, *Cinclus mexicanus*
- Dotterel, Eurasian, *Charadrius morinellus*
- Dove, Inca, *Columbina inca*
- ✓ Mourning, *Zenaida macroura*
- White-tipped, *Leptotila verreauxi*
- White-winged, *Zenaida asiatica*
- Zenaida, *Zenaida aurita*
- Dovekie, *Alle alle*
- Dowitcher, Long-billed, *Limnodromus scolopaceus*
- Short-billed, *Limnodromus griseus*
- Duck, American Black, *Anas rubripes*
- Harlequin, *Histrionicus histrionicus*
- Hawaiian, *Anas wyvilliana*
- Laysan, *Anas laysanensis*
- Masked, *Oxyura dominica*
- Mottled, *Anas fulvigula*
- Ring-necked, *Aythya collaris*
- Ruddy, *Oxyura jamaicensis*
- Tufted, *Aythya fuligula*
- Wood, *Aix sponsa*
- Dunlin, *Calidris alpina*

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- ✓ Eagle, Bald, *Haliaeetus leucocephalus*
- Golden, *Aquila chrysaetos*
- White-tailed, *Haliaeetus albicilla*
- ✓ Egret, Cattle, *Bubulcus ibis*
- Chinese, *Egretta eulophotes*
- Great, *Ardea (=Casmerodius) alba (=albus)*
- Intermediate (=Plumed), *Mesophoyx (=Egretta) intermedia*
- Plumed (see Egret, Intermediate)

Reddish, *Egretta rufescens*
✓ Snowy, *Egretta thula*
Eider, Common, *Somateria mollissima*
King, *Somateria spectabilis*
Spectacled, *Somateria fischeri*
Steller's, *Polysticta stelleri*
Elaenia, Caribbean, *Elaenia martinica*
Emerald, Puerto Rican, *Chlorostilbon maugaeus*
Euphonia, Antillean, *Euphonia musica*

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✓ Falcon, Aplomado, *Falco femoralis*
Peregrine, *Falco peregrinus*
Prairie, *Falco mexicanus*
Fieldfare, *Turdus pilaris*
Finch, Cassin's, *Carpodacus cassinii*
✓ House, *Carpodacus mexicanus*
Purple, *Carpodacus purpureus*
Rosy (see Rosy-Finch, Black; Rosy-Finch, Brown-capped; and Rosy-Finch, Gray-crowned)
Flamingo, Greater, *Phoenicopterus ruber*
✓ Flicker, Gilded (=Northern), *Colaptes chrysoides (=auratus)*
Northern, *Colaptes auratus*
✓ Flycatcher, Acadian, *Empidonax virescens*
Alder, *Empidonax alnorum*
Ash-throated, *Myiarchus cinerascens*
Brown-crested, *Myiarchus tyrannulus*
Buff-breasted, *Empidonax fulvifrons*
Cordilleran (=Western), *Empidonax occidentalis (=difficilis)*
Dusky, *Empidonax oberholseri*
Dusky-capped, *Myiarchus tuberculifer*
Fork-tailed, *Tyrannus savana*
* Gray, *Empidonax wrightii*
Gray-spotted, *Muscicapa griseisticta*
Great Crested, *Myiarchus crinitus*
Hammond's, *Empidonax hammondii*
Least, *Empidonax minimus*
Narcissus, *Muscicapa narcissina*
Nutting's, *Myiarchus nuttingi*
Olive-sided, *Contopus borealis*
Pacific-slope (=Western), *Empidonax difficilis*
Puerto Rican, *Myiarchus antillarum*
Scissor-tailed, *Tyrannus forficatus*
Sulphur-bellied, *Myiodynastes luteiventris*
Vermilion, *Pyrocephalus rubinus*
Western (see Flycatcher, Cordilleran; and Flycatcher, Pacific-slope)
Willow, *Empidonax traillii*
Yellow-bellied, *Empidonax flaviventris*
Frigatebird, Great, *Fregata minor*
Lesser, *Fregata ariel*
Magnificent, *Fregata magnificens*
Fulmar, Northern, *Fulmarus glacialis*

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Gadwall, *Anas strepera*
Gallinule, Purple, *Porphyryula martinica*
Gannet (see Gannet, Northern)
Northern (=Gannet), *Morus (=Sula) bassanus*
Garganey, *Anas querquedula*
Gnatcatcher, Black-capped, *Polioptila nigriceps*
Black-tailed, *Polioptila melanura*
Blue-gray, *Polioptila caerulea*

California (=Black-tailed), *Polioptila californica* (=melanura)
 Godwit, Bar-tailed, *Limosa lapponica*
 Black-tailed, *Limosa limosa*
 Hudsonian, *Limosa haemastica*
 Marbled, *Limosa fedoa*
 ✓ Golden-Plover, American (=Lesser), *Pluvialis dominicus* (=dominica)
 Lesser (see Golden-Plover, American; and Golden-Plover, Pacific)
 Pacific (=Lesser), *Pluvialis fulva* (=dominica)
 Goldeneye, Barrow's, *Bucephala islandica*
 Common, *Bucephala clangula*
 ✓ Goldfinch, American, *Carduelis tristis*
 Lawrence's, *Carduelis lawrencei*
 Lesser, *Carduelis psaltria*
 Goose, Barnacle, *Branta leucopsis*
 Bean, *Anser fabalis*
 Canada, *Branta canadensis*
 Emperor, *Chen canagica*
 Greater White-fronted, *Anser albifrons*
 Hawaiian, *Branta* (=Nesochen) *sandvicensis* Ross', *Chen rossii*
 Snow, *Chen caerulescens*
 ✓ Goshawk, Northern, *Accipiter gentilis*
 ✓ Grackle, Boat-tailed, *Quiscalus major*
 Common, *Quiscalus quiscula*
 Great-tailed, *Quiscalus mexicanus*
 Greater Antillean, *Quiscalus niger*
 Grasshopper-Warbler, Middendorff's, *Locustella ochotensis*
 Grassquit, Black-faced, *Tiaris bicolor*
 Yellow-faced, *Tiaris olivacea*
 Grebe, Clark's (=Western), *Aechmophorus clarkii* (=occidentalis)
 Eared, *Podiceps nigricollis*
 Horned, *Podiceps auritus*
 Least, *Tachybaptus dominicus*
 Pied-billed, *Podilymbus podiceps*
 Red-necked, *Podiceps grisegena*
 Western, *Aechmophorus occidentalis*
 Greenfinch, Oriental, *Carduelis sinica*
 Greenshank, Common, *Tringa nebularia*
 Grosbeak, Black-headed, *Pheucticus malanocephalus*
 Blue, *Guiraca caerulea*
 Crimson-collared, *Rhodothraupis celaeno*
 Evening, *Coccothraustes vespertinus*
 Pine, *Pinicola enucleator*
 Rose-breasted, *Pheucticus ludovicianus*
 Yellow, *Pheucticus chrysopheplus*
 Ground-Dove, Common, *Zenaida passerina*
 Ruddy, *Zenaida talpacoti*
 Guillemot, Black, *Cepphus grylle*
 Pigeon, *Cepphus columba*
 Gull, Black-headed (=Common Black-headed), *Larus ridibundus*
 Bonaparte's, *Larus philadelphia*
 California, *Larus californicus*
 Common Black-headed (see Gull, Black-headed)
 Franklin's, *Larus pipixcan*
 Glaucous, *Larus hyperboreus*
 Glaucous-winged, *Larus glaucescens*
 Great Black-backed, *Larus marinus*
 Heermann's, *Larus heermanni*
 Herring, *Larus argentatus*
 Iceland, *Larus glaucoides*
 Ivory, *Pagophila eburnea*
 Laughing, *Larus atricilla*
 Lesser Black-headed, *Larus fuscus*
 Little, *Larus minutus*
 Mew, *Larus canus*
 Ring-billed, *Larus delawarensis*

Ross', *Rhodostethia rosea*
Sabine's, *Xema sabini*
Slaty-backed, *Larus schistisagus*
Thayer's, *Larus thayeri*
Western, *Larus occidentalis*
Yellow-footed, *Larus livens*

Gyrffalcon, *Falco rusticolus*

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Harrier, Northern, *Circus cyaneus*

Hawfinch, *Coccothraustes coccothraustes*

✓ Hawk, Asiatic Sparrow, *Accipiter gularis*

Broad-winged, *Buteo platypterus*

Cooper's, *Accipiter cooperii*

Ferruginous, *Buteo regalis*

Gray, *Buteo nitidus*

Harris', *Parabuteo unicinctus*

Hawaiian, *Buteo solitarius*

Red-shouldered, *Buteo lineatus*

* Red-tailed, *Buteo jamaicensis*

Rough-legged, *Buteo lagopus*

Sharp-shinned, *Accipiter striatus*

Short-tailed, *Buteo brachyurus*

Swainson's, *Buteo swainsoni*

White-tailed, *Buteo albicaudatus*

Zone-tailed, *Buteo albonotatus*

Hawk-Cuckoo, Hodgson's, *Cuculus fugax*

Hawk-Owl, Northern (see Owl, Hawk)

✓ Heron, Great Blue, *Ardea herodias*

Green (=Green-backed), *Butorides virescens* (=striatus)

Green-backed (see Heron, Green)

Little Blue, *Ardea caerulea*

Night (see Night-Heron)

Pacific Reef, *Ardea sacra*

Tricolored, *Ardea tricolor*

Hoopoe, *Upupa epops*

✓ House-Martin, Common, *Delichon urbica*

✓ Hummingbird, Allen's, *Selasphorus sasin*

Anna's, *Calypte anna*

Antillean Crested, *Orthorhynchus cristatus*

Berylline, *Amazilia beryllina*

Black-chinned, *Archilochus alexandri*

Blue-throated, *Lampornis clemenciae*

Broad-billed, *Cynanthus latirostris*

Broad-tailed, *Selasphorus platycercus*

Buff-bellied, *Amazilia yucatanensis*

Calliope, *Stellula calliope*

Costa's, *Calypte costae*

Lucifer, *Calothorax lucifer*

Magnificent, *Eugenes fulgens*

* Ruby-throated, *Archilochus colubris*

Rufous, *Selasphorus rufus*

Violet-crowned, *Amazilia violiceps*

White-eared, *Hylocharis leucotis*

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Ibis, Glossy, *Plegadis falcinellus*

Scarlet, *Eudocimus ruber*

White, *Eudocimus albus*

White-faced, *Plegadis chihi*

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Jabiru, Jabiru mycteria
Jacana, Northern, Jacana spinosa
Jaeger, Long-tailed, Stercorarius longicaudus
Parasitic, Stercorarius parasiticus
Pomarine, Stercorarius pomarinus
✓ Jay, Blue, Cyanocitta cristata
Brown, Cyanocorax morio
Gray, Perisoreus canadensis
Gray-Breasted (see Jay, Mexican)
Green, Cyanocorax yncas
Mexican (=Gray-breasted), Aphelocoma ultramarina
Pinyon, Gymnorhinus cyanocephalus
Scrub (see Scrub-Jay, Florida; Scrub-Jay, Island; and Scrub-Jay,
Western)
Steller's, Cyanocitta stelleri
✓ Junco, Dark-eyed, Junco hyemalis
Yellow-eyed, Junco phaeonotus

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Kamao (=Thrush, Hawaiian), Myadestes (=Phaeornis) myadestinus
(=obscurus)
Kestrel, American, Falco sparverius
Eurasian, Falco tinnunculus
✓ Killdeer, Charadrius vociferus
Kingbird, Cassin's, Tyrannus vociferans
Couch's, Tyrannus couchii
Eastern, Tyrannus tyrannus
Gray, Tyrannus dominicensis
Loggerhead, Tyrannus caudifasciatus
Thick-billed, Tyrannus crassirostris
Tropical, Tyrannus melancholicus
Western, Tyrannus verticalis
Kingfisher, Belted, Ceryle alcyon
Green, Chloroceryle americana
Ringed, Ceryle torquata
Kinglet, Golden-crowned, Regulus satrapa
Ruby-crowned, Regulus calendula
Kiskadee, Great, Pitangus sulphuratus
Kite, American Swallow-tailed (see Kite, Swallow-tailed)
Black, Milvus migrans
Black-shouldered (see Kite, White-tailed)
Hook-billed, Chondrohierax uncinatus
Mississippi, Ictinia mississippiensis
Snail, Rostrhamus sociabilis
Swallow-tailed, Elanoides forficatus
White-tailed (=Black-shouldered), Elanus leucurus (=caeruleus)
Kittiwake, Black-legged, Rissa tridactyla
Red-legged, Rissa brevirostris
Knot, Great, Calidris tenuirostris
Red, Calidris canutus

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Lapwing, Northern, Vanellus vanellus
Lark, Horned, Eremophila alpestris
Sky (=Skylark, Eurasian), Alauda arvensis
Limpkin, Aramus guarauna
Lizard-Cuckoo, Puerto Rican, Saurothera vieillotii
Longspur, Chestnut-collared, Calcarius ornatus
Lapland, Calcarius lapponicus

McCown's, *Calcarius mccownii*
Smith's, *Calcarius pictus*
Loon, Arctic, *Gavia arctica*
Common, *Gavia immer*
Pacific (=Arctic), *Gavia pacifica* (=arctica)
Red-throated, *Gavia stellata*
Yellow-billed, *Gavia adamsii*

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Magpie, Black-billed, *Pica pica*
Yellow-billed, *Pica nuttalli*
Mallard, *Anas platyrhynchos*
Mango, Antillean, *Anthracothorax dominicus*
Green, *Anthracothorax viridis*
✓ Martin, Caribbean, *Progne dominicensis*
Cuban, *Progne cryptoleuca*
Gray-breasted, *Progne chalybea*
*Purple, *Progne subis*
✓ Meadowlark, ~~Eastern~~, *Sturnella magna*
Western, *Sturnella neglecta*
Merganser, Common, *Mergus merganser*
Hooded, *Lophodytes cucullatus*
Red-breasted, *Mergus serrator*
Merlin, *Falco columbarius*
Mockingbird, Northern, *Mimus polyglottos*
Moorhen, Common, *Gallinula chloropus*
Murre, Common, *Uria aalge*
Thick-billed, *Uria lomvia*
Murrelet, Ancient, *Synthliboramphus antiquus*
Craveri's, *Synthliboramphus craveri*
Kittlitz's, *Brachyramphus brevirostris*
Marbled, *Brachyramphus marmoratus*
Xantus', *Synthliboramphus hypoleucus*

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Needletail, White-throated, *Hirundapus caudacutus*
Night-Heron, Black-crowned, *Nycticorax nycticorax*
Japanese, *Nycticorax goisagi*
Malay, *Nycticorax melanolophus*
Yellow-crowned, *Nyctanassa* (=Nycticorax) *violacea* (=violaceus)
Nighthawk, Antillean, *Chordeiles gundlachii*
Common, *Chordeiles minor*
Lesser, *Chordeiles acutipennis*
Nightjar, Buff-collared, *Caprimulgus ridgwayi*
Puerto Rican, *Caprimulgus noctitherus*
Jungle, *Caprimulgus indicus*
Noddy, Black, *Anous minutus*
Blue-gray, *Procelsterna cerulea*
Brown, *Anous stolidus*
Lesser, *Anous tenuirostris*
Nutcracker, Clark's, *Nucifraga columbiana*
✓ Nuthatch, Brown-headed, *Sitta pusilla*
Pygmy, *Sitta pygmaea*
Red-breasted, *Sitta canadensis*
White-breasted, *Sitta carolinensis*

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Oldsquaw, *Clangula hyemalis*
Olomao (=Thrush, Hawaiian), *Myadestes* (=Phaeornis) *lanaiensis* (=obscurus)

Omao (=Thrush, Hawaiian), Myadestes (=Phaeornis) obscurus
 ✓ Oriole, Altamira, Icterus gularis
 Audubon's, Icterus graduacauda
 * Baltimore (=Northern), Icterus galbula
 Black-cowled, Icterus dominicensis
 Black-vented, Icterus wagleri
 Bullock's (=Northern), Icterus bullockii (=galbula)
 Hooded, Icterus cucullatus
 Northern (see Oriole, Baltimore; and Oriole, Bullock's)
 Orchard, Icterus spurius
 Scott's, Icterus parisorum
 Streak-backed, Icterus pustulatus
 ✓ Osprey, Pandion haliaetus
 Ovenbird, Seiurus aurocapillus
 ✓ Owl, * Barn (=Barn-Owl, Common), Tyto alba
 * Barred, Strix varia
 Boreal, Aegolius funereus
 Burrowing, Speotyto (=Athene) cunicularia
 Elf, Micrathene whitneyi
 Flammulated, Otus flammeolus
 Great Gray, Strix nebulosa
 Great Horned, Bubo virginianus
 Hawk (=Hawk-Owl, Northern), Surnia ulula
 Long-eared, Asio otus
 Northern Saw-whet, Aegolius acadicus
 Short-eared, Asio flammeus
 Snowy, Nyctea scandiaca
 Spotted, Strix occidentalis
 Oystercatcher, American, Haematopus palliatus
 Black, Haematopus bachmani

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Parula, Northern, Parula americana
 Tropical, Parula pitiaiyumi
 Pauraque (=Pauraque, Common), Nyctidromus albicollis
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 Pelican, American White, Pelecanus erythrorhynchos
 Brown, Pelecanus occidentalis
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 Bonin, Pterodroma hypoleuca
 Bulwer's, Bulweria bulwerii
 Cook's, Pterodroma cookii
 Dark-rumped, Pterodroma phaeopygia
 Herald, Pterodroma arminjoniana
 Juan Fernandez (=White-necked), Pterodroma externa
 Kermadec, Pterodroma neglecta
 Mottled, Pterodroma inexpectata
 Murphy's, Pterodroma ultima
 White-necked, Pterodroma cervicalis (=externa)
 Pewee, Greater, Contopus pertinax
 Lesser Antillean, Contopus latirostris
 Phainopepla, Phainopepla nitens
 Phalarope, Red, Phalaropus fulicaria
 Red-necked, Phalaropus lobatus
 Wilson's, Phalaropus tricolor
 Phoebe, Black, Sayornis nigricans
 Eastern, Sayornis phoebe
 Say's, Sayornis saya
 ✓ Pigeon, Band-tailed, Columba fasciata
 Plain, Columba inornata
 Red-billed, Columba flavirostris
 Scaly-naped, Columba squamosa
 White-crowned, Columba leucocephala
 Pintail, Northern, Anas acuta

White-cheeked, *Anas bahamensis*
Pipit, American (=Water), *Anthus rubescens* (=spinoletta)
Olive-backed (=Tree-Pipit, Olive), *Anthus hodgsoni*
Pechora, *Anthus gustavi*
Red-throated, *Anthus cervinus*
Sprague's, *Anthus spragueii*
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Plover, Black-bellied, *Pluvialis squatarola*
Common Ringed, *Charadrius hiaticula*
Great Sand, *Charadrius leschensultii*
Little Ringed, *Charadrius dubius*
Mongolian, *Charadrius mongolus*
Mountain, *Charadrius montanus*
Piping, *Charadrius melodus*
Semipalmated, *Charadrius semipalmatus*
Snowy, *Charadrius alexandrinus*
Wilson's, *Charadrius wilsonia*
Pochard, Baer's, *Aythya baeri*
Common, *Aythya ferina*
Poorwill, Common, *Phalaenoptilus nuttallii*
Puaiohi (=Thrush, Small Kauai), *Myadestes* (=Phaeornis) *palmeri*
Puffin, Atlantic, *Fratercula arctica*
Horned, *Fratercula corniculata*
Tufted, *Fratercula cirrhata*
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Ruddy, *Geotrygon montana*
Rail, Black, *Laterallus jamaicensis*
Clapper, *Rallus longirostris*
King, *Rallus elegans*
Virginia, *Rallus limicola*
Yellow, *Coturnicops noveboracensis*
Raven, Chihuahuan, *Corvus cryptoleucus*
Common, *Corvus corax*
Razorbill, *Alca torda*
Redhead, *Aythya americana*
Redpoll, Common, *Carduelis flammea*
Hoary, *Carduelis hornemanni*
Redshank, Spotted, *Tringa erythropus*
Redstart, American, *Setophaga ruticilla*
Painted, *Myioborus pictus*
Slate-throated, *Myioborus miniatus*
Reed-Bunting, Common (see Bunting, Common)
Pallas' (see Bunting, Pallas')
Roadrunner, Greater, *Geococcyx californianus*
✓ Robin, American, *Turdus migratorius*
Clay-colored, *Turdus grayi*
Rufous-backed, *Turdus rufopalliatus*
Rosefinch, Common, *Carpodacus erythrinus*
Rosy-Finch (=Finch), Black (=Rosy), *Leucosticte atrata* (=arctoa)
Brown-capped (=Rosy), *Leucosticte australis* (=arctoa)
Gray-crowned (=Rosy), *Leucosticte tephrocotis* (=arctoa)
Rough-winged Swallow, Northern, *Stelgidopteryx serripennis*
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Sanderling, *Calidris alba*
Sandpiper, Baird's, *Calidris bairdii*
Broad-billed, *Limicola falcinellus*
Buff-breasted, *Tryngites subruficollis*
Common, *Actitis hypoleucos*
Curlew, *Calidris ferruginea*
Least, *Calidris minutilla*
Marsh, *Tringa stagnatilis*
Pectoral, *Calidris melanotos*
Purple, *Calidris maritima*
Rock, *Calidris ptilocnemis*
Semipalmated, *Calidris pusilla*
Sharp-tailed, *Calidris acuminata*
Solitary, *Tringa solitaria*
Spoonbill, *Eurynorhynchus pygmeus*
Spotted, *Actitis macularia*
Stilt, *Calidris himantopus*
Terek, *Xenus cinereus*
Upland, *Bartramia longicauda*
Western, *Calidris mauri*
White-rumped, *Calidris fuscicollis*
Wood, *Tringa glareola*
Sapsucker, Red-breasted, *Sphyrapicus ruber*
Red-naped (=Yellow-bellied), *Sphyrapicus nuchalis* (=varius)
Williamson's, *Sphyrapicus thyroideus*
Yellow-bellied, *Sphyrapicus varius*
Scaup, Greater, *Aythya marila*
Lesser, *Aythya affinis*
Scoter, Black, *Melanitta nigra*
Surf, *Melanitta perspicillata*
White-winged, *Melanitta fusca*
Screech-Owl, Eastern, *Otus asio*
Puerto Rican, *Otus nudipes*
Western, *Otus kennicottii*
Whiskered, *Otus trichopsis*
Scrub-Jay (=Jay), Florida (=Scrub), *Aphelocoma coerulescens*
Island (=Scrub), *Aphelocoma insularis* (=coerulescens)
Western (=Scrub), *Aphelocoma californica* (=coerulescens)
Sea-Eagle, Steller's, *Haliaeetus pelagicus*
Seed-eater, White-collared, *Sporophila torqueola*
Shearwater, Audubon's, *Puffinus lherminieri*
Black-vented, *Puffinus opisthomelas*
Buller's, *Puffinus bulleri*
Christmas, *Puffinus nativitatis*
Cory's, *Bulweria diomedea*
Flesh-footed, *Puffinus carneipes*
Greater, *Puffinus gravis*
Little, *Puffinus assimilis*
Manx, *Puffinus puffinus*
Pink-footed, *Puffinus creatopus*
Short-tailed, *Puffinus tenuirostris*
Sooty, *Puffinus griseus*
Townsend's, *Puffinus auricularis*
Wedge-tailed, *Puffinus pacificus*
Shoveler, Northern, *Anas clypeata*
Shrike, Loggerhead, *Lanius ludovicianus*
Northern, *Lanius excubitor*
Siskin, Pine, *Carduelis pinus*
Skimmer, Black, *Rhynchops niger*
Skua, Great, *Catharacta skua*
South Polar, *Catharacta maccormicki*
Skylark, Eurasian (see Lark, Sky)
Smew, *Mergellus albellus*
Snipe, Common, *Gallinago gallinago*

Jack, *Lymnocyptes minimus*
 Pin-tailed, *Gallinago stenura*
 Swinhoe's, *Gallinago megala*
 Solitaire, Townsend's, *Myadestes townsendi*
 Sora, *Porzana carolina*
 ✓ Sparrow, American Tree, *Spizella arborea*
 Bachman's, *Aimophila aestivalis*
 Baird's, *Ammodramus bairdii*
 Black-chinned, *Spizella atrogularis*
 Black-throated, *Amphispiza bilineata*
 Botteri's, *Aimophila botterii*
 Brewer's, *Spizella breweri*
 Cassin's, *Aimophila cassinii*
 Chipping, *Spizella passerina*
 Clay-colored, *Spizella pallida*
 Field, *Spizella pusilla*
 Five-striped, *Amphispiza quinquestriata*
 Fox, *Passerella iliaca*
 Golden-crowned, *Zonotrichia atricapilla*
 Grasshopper, *Ammodramus savannarum*
 Harris', *Zonotrichia querula*
 Henslow's, *Ammodramus henslowii*
 Lark, *Chondestes grammacus*
 Le Conte's, *Ammodramus leconteii*
 Lincoln's, *Melospiza lincolnii*
 Nelson's Sharp-tailed (=Sharp-tailed), *Ammodramus nelsoni* (=caudacutus)
 Olive, *Arremonops rufivirgatus*
 Rufous-crowned, *Aimophila ruficeps*
 Rufous-winged, *Aimophila carpalis*
 Sage, *Amphispiza belli*
 Savannah, *Passerculus sandwichensis*
 Seaside, *Ammodramus maritimus*
 Saltmarsh Sharp-tailed (=Sharp-tailed), *Ammodramus caudacutus*
 Sharp-tailed (see Sparrow, Nelson's Sharp-tailed; and Sparrow,
 Saltmarsh Sharp-tailed)
 Song, *Melospiza melodia*
 Swamp, *Melospiza georgiana*
 Vesper, *Poocetes gramineus*
 White-crowned, *Zonotrichia leucophrys*
 White-throated, *Zonotrichia albicollis*
 Worthen's, *Spizella wortheni*
 Spoonbill, Roseate, *Ajaia ajaja*
 ✓ Starling, Ashy, *Sturnus cineraceus*
 *Violet-backed, *Sturnus philippensis*
 Starthroat, Plain-capped, *Helimaster constantii*
 Stilt, Black-necked, *Himantopus mexicanus*
 Stint, Little, *Calidris minuta*
 Long-toed, *Calidris subminuta*
 Red-necked (=Rufous-necked), *Calidris ruficollis*
 Temminck's, *Calidris temminckii*
 Stork, Wood, *Mycteria americana*
 Storm-Petrel, Ashy, *Oceanodroma homochroa*
 Band-rumped, *Oceanodroma castro*
 Black, *Oceanodroma melania*
 Fork-tailed, *Oceanodroma furcata*
 Leach's, *Oceanodroma leucorhoa*
 Least, *Oceanodroma microsoma*
 Sooty (see Storm-Petrel, Tristram's)
 Tristram's (=Sooty), *Oceanodroma tristrami*
 Wedge-rumped, *Oceanodroma tethys*
 White-faced, *Pelagodroma marina*
 Wilson's, *Oceanites oceanicus*
 Surfbird, *Aphriza virgata*
 ✓ Swallow, Bahama, *Tachycineta cyaneoviridis*
 Bank, *Riparia riparia*

*Barn, *Hirundo rustica*
Cave, *Hirundo fulva*
Cliff, *Hirundo pyrrhonota*
Northern Rough-winged (see Rough-winged Swallow, Northern)
Tree, *Tachycineta bicolor*
Violet-green, *Tachycineta thalassina*
Swan, Trumpeter, *Cygnus buccinator*
Tundra, *Cygnus columbianus*
Whooper, *Cygnus cygnus*
Swift, Antillean Palm, *Tachornis phoenicobia*
Black, *Crypseloides niger*
Chimney, *Chaetura pelagica*
Common, *Apus apus*
Fork-tailed, *Apus pacificus*
Vaux's, *Chaetura vauxi*
White-collared, *Streptoprocne zonaris*
White-throated, *Aeronautes saxatalis*

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✓Tanager, Hepatic, *Piranga flava*
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*Scarlet, *Piranga olivacea*
Stripe-headed, *Spindalis zena*
Summer, *Piranga rubra*
Western, *Piranga ludoviciana*
Tattler, Gray-tailed, *Heteroscelus brevipes*
Wandering, *Heteroscelus incanus*
Teal, Baikal, *Anas formosa*
Blue-winged, *Anas discors*
Cinnamon, *Anas cyanoptera*
Falcated, *Anas falcata*
Green-winged, *Anas crecca*
Tern, Aleutian, *Sterna aleutica*
Arctic, *Sterna paradisaea*
Black, *Chlidonias niger*
Black-naped, *Sterna sumatrana*
Bridled, *Sterna anaethetus*
Caspian, *Sterna caspia*
Common, *Sterna hirundo*
Elegant, *Sterna elegans*
Forster's, *Sterna forsteri*
Gray-backed, *Sterna lunata*
Gull-billed, *Sterna nilotica*
Least, *Sterna antillarum*
Little, *Sterna albifrons*
Roseate, *Sterna dougallii*
Royal, *Sterna maxima*
Sandwich, *Sterna sandvicensis*
Sooty, *Sterna fuscata*
White, *Gygis alba*
White-winged, *Chlidonias leucopterus*
Thrasher, Bendire's, *Toxostoma bendirei*
Brown, *Toxostoma rufum*
California, *Toxostoma redivivum*
Crissal, *Toxostoma crissale*
Le Conte's, *Toxostoma lecontei*
Long-billed, *Toxostoma longirostre*
Pearly-eyed, *Margarops fuscatus*
Sage, *Oreoscoptes montanus*
Thrush, Aztec, *Ridgwayia pinicola*
Bicknell's (=Gray-cheeked), *Catharus bicknelli* (=minimus)
Blue Rock, *Monticola solitarius*
Dusky, *Turdus naumanni*

Eyebrowed (=Eye-browed), *Turdus obscurus*
Gray-cheeked, *Catharus minimus*
Hawaiian (see Kamao, Olomao, and Omao)
Hermit, *Catharus guttatus*
Red-legged, *Turdus plumbeus*
Small Kauai (see Puaiohi)
Swainson's, *Catharus ustulatus*
Varied, *Ixoreus naevius*
Wood, *Hylocichla mustelina*

✓ Tit, Siberian, *Parus cinctus*

✓ Titmouse, Bridled, *Parus wollweberi*

* Plain, *Parus inornatus*

Tufted, *Parus bicolor*

✓ Towhee, Abert's, *Pipilo aberti*

Brown (see Towhee, California; and Towhee, Canyon)

California (=Brown), *Pipilo crissalis* (=fuscus)

Canyon (=Brown), *Pipilo fuscus*

* Eastern (=Rufous-sided), *Pipilo erythrophthalmus*

Green-tailed, *Pipilo chlorurus*

Rufous-sided (see Towhee, Eastern; and Towhee, Spotted)

Spotted (=Rufous-sided), *Pipilo maculatus* (=erythrophthalmus)

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Trogon, Eared, *Euptilotus neoxenus*

Elegant, *Trogon elegans*

Tropicbird, Red-billed, *Phaethon aethereus*

Red-tailed, *Phaethon rubricauda*

White-tailed, *Phaethon lepturus*

Turnstone, Black, *Arenaria melanocephala*

Ruddy, *Arenaria interpres*

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Veery, *Catharus fuscescens*

Verdin, *Auriparus flaviceps*

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Vireo, Bell's, *Vireo bellii*

Black-capped, *Vireo atricapillus*

Black-whiskered, *Vireo altiloquus*

Gray, *Vireo vicinior*

Hutton's, *Vireo huttoni*

Philadelphia, *Vireo philadelphicus*

Puerto Rican, *Vireo latimeri*

Red-eyed, *Vireo olivaceus*

Solitary, *Vireo solitarius*

Warbling, *Vireo gilvus*

White-eyed, *Vireo griseus*

Yellow-green (=Red-eyed), *Vireo flavoviridis* (=olivaceus)

Yellow-throated, *Vireo flavifrons*

✓ Vulture, Black, *Coragyps atratus*

* Turkey, *Cathartes aura*

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Wagtail, Black-backed, *Motacilla lugens*

Gray, *Motacilla cinerea*

White, *Motacilla alba*

Yellow, *Motacilla flava*

Warbler, Adelaide's, *Dendroica adelaidae*

Arctic, *Phylloscopus borealis*

Bachman's, *Vermivora bachmanii*

Bay-breasted, *Dendroica castanea*

Black-and-white, *Dendroica varia*

Black-throated Blue, *Dendroica caerulescens*

Black-throated Gray, *Dendroica nigrescens*

Black-throated Green, *Dendroica virens*
Blackburnian, *Dendroica fusca*
Blackpoll, *Dendroica striata*
Blue-winged, *Vermivora pinus*
Canada, *Wilsonia canadensis*
Cape May, *Dendroica tigrina*
Cerulean, *Dendroica cerulea*
Chestnut-sided, *Dendroica pensylvanica*
Colima, *Vermivora crissalis*
Connecticut, *Oporornis agilis*
Elfin Woods, *Dendroica angelae*
Golden-cheeked, *Dendroica chrysoparia*
Golden-crowned, *Basileuterus culicivorus*
Golden-winged, *Vermivora chrysoptera*
Grace's, *Dendroica graciae*
Hermit, *Dendroica occidentalis*
Hooded, *Wilsonia citrina*
Kentucky, *Oporornis formosus*
Kirtland's, *Dendroica kirtlandii*
Lucy's, *Vermivora luciae*
MacGillivray's, *Oporornis tolmiei*
Magnolia, *Dendroica magnolia*
Mourning, *Oporornis philadelphia*
Nashville, *Vermivora ruficapilla*
Olive, *Peucedramus taeniatus*
Orange-crowned, *Vermivora celata*
Palm, *Dendroica palmarum*
Pine, *Dendroica pinus*
Prairie, *Dendroica discolor*
Prothonotary, *Protonotaria citrea*
Red-faced, *Cardellina rubrifrons*
Rufous-capped, *Basileuterus rufifrons*
Swainson's, *Limnothlypis swainsonii*
Tennessee, *Vermivora peregrina*
Townsend's, *Dendroica townsendi*
Virginia's, *Vermivora virginiae*
Willow, *Phylloscopus trochilus*
Wilson's, *Wilsonia pusilla*
Worm-eating, *Helminthos vermivorus*
Yellow, *Dendroica petechia*
Yellow-rumped, *Dendroica coronata*
Yellow-throated, *Dendroica dominica*
Waterthrush, Louisiana, *Seiurus motacilla*
Northern, *Seiurus noveboracensis*
Waxwing, Bohemian, *Bombycilla garrulus*
Cedar, *Bombycilla cedrorum*
Wheatear, Northern, *Oenanthe oenanthe*
Whimbrel, *Numenius phaeopus*
Whip-poor-will, *Caprimulgus vociferus*
Whistling-Duck, Black-bellied, *Dendrocygna autumnalis*
Fulvous, *Dendrocygna bicolor*
West Indian, *Dendrocygna arborea*
Wigeon, American, *Anas americana*
Eurasian, *Anas penelope*
Willet, *Catoptrophorus semipalmatus*
Wood-Pewee, Eastern, *Contopus virens*
Western, *Contopus sordidulus*
Woodcock, American, *Scolopax minor*
Eurasian, *Scolopax rusticola*
✓ Woodpecker, Acorn, *Melanerpes formicivorus*
Black-backed, *Picoides arcticus*
* Downy, *Picoides pubescens*
Gila, *Melanerpes uropygialis*
Golden-fronted, *Melanerpes aurifrons*
Hairy, *Picoides villosus*

Ivory-billed, *Campephilus principalis*

Ladder-backed, *Picoides scalaris*

Lewis', *Melanerpes lewis*

Nuttall's, *Picoides nuttallii*

*Pileated, *Dryocopus pileatus*

Puerto Rican, *Melanerpes portoricensis*

Red-bellied, *Melanerpes carolinus*

Red-cockaded, *Picoides borealis*

*Red-headed, *Melanerpes erythrocephalus*

Strickland's, *Picoides stricklandi*

Three-toed, *Picoides tridactylus*

White-headed, *Picoides albolarvatus*

Woodstar, Bahama, *Calliphlox evelynae*

*Wren, Bewick's *Thryothorus bewickii*

Cactus, *Campylorhynchus brunneicapillus*

Canyon, *Catherpes mexicanus*

*Carolina, *Thryothorus ludovicianus*

House, *Troglodytes aedon*

Marsh, *Cistothorus palustris*

Rock, *Salpinctes obsoletus*

Sedge, *Cistothorus platensis*

Winter, *Troglodytes troglodytes*

Wryneck, Eurasian, *Jynx torquilla*

Yellowlegs, Greater, *Tringa melanoleuca*

Lesser, *Tringa flavipes*

Yellowthroat, Common, *Geothlypis trichas*

Gray-crowned, *Geothlypis poliocephala*

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