

# Bald Eagle (*Haliaeetus leucocephalus*)

## Legal Status

**State:** Endangered, Fully Protected

**Federal:** Protected under the Bald Eagle and Golden Eagle Protection Act and Migratory Bird Treaty Act, U.S. Forest Service Sensitive

**Critical Habitat:** N/A

**Recovery Planning:** Multiple recovery plans have been developed in the United States in several regions, including Chesapeake Bay (USFWS 1990), Southeastern States (USFWS 1989), Pacific (USFWS 1986), Northern States (USFWS 1983), and Southwestern (USFWS 1982) Bald Eagle recovery plans, as well a Post-Delisting Monitoring Plan (USFWS 2010).

**Notes:** Delisted from the Endangered Species Act due to recovery in the conterminous (lower 48) United States.

## Taxonomy

Two subspecies of bald eagle are tentatively recognized (AOU 1957)—the larger northern *haliaeetus alascanus* and the smaller southern *haliaeetus leucocephalus*—but their geographical limits are unclear, and the biological basis for this recognition is doubted (Amadon 1983; Palmer et al. 1988). The USFWS reviewed the petition from the Center for Biological Diversity and the Maricopa Audubon Society to recognize the Sonoran Desert population as a Distinct Population Segment (DPS) and list it under the Endangered Species Act. On February 25, 2010, the USFWS published the finding on the petition that the listing of a Sonoran Desert DPS was not warranted (75 FR 8601–8621).

## Distribution

### General

Breeding populations of the bald eagle exist predominantly in Alaska and Canada, as well as in the contiguous United States along the

Washington, Oregon, and Northern California coasts; the Rocky Mountains in Idaho, Montana, Wyoming, and Colorado; and the Atlantic coast from Florida to Maine (Figure SP-B2). Limited breeding also occurs in the southwestern United States (Arizona and New Mexico) and in Mexico (Mattsson 1988). Bald eagles are associated with aquatic habitats (coastal areas, rivers, lakes, and reservoirs) and with forested shorelines or cliffs in North America (Buehler 2000). A variety of field guides (e.g., Peterson 1990; Sibley 2000; National Geographic 2002) provide descriptions of the species' physical characteristics, behavior, and distribution.

### **Distribution and Occurrences within the Plan Area**

#### ***Historical***

The distribution of bald eagle populations prior to the 1940s is poorly understood, although records indicate that it was probably similar to the present breeding distribution (Oberholser 1906). Declines in populations probably began in the 19th century, and then accelerated rapidly after 1947. By the 1950s, direct persecution, habitat destruction, and dichlorodiphenyltrichloroethane (DDT) contamination had resulted in the extirpation of all remaining pairs in Southern California (USFWS 1986). There are eight historical occurrences (i.e., before 1990) or occurrences of unknown date within the Plan Area in the following areas: southwest of Barstow along the Mojave River, east Barstow in the Cady Mountains area, north of Ridgecrest, and several observations at Harper Lake (Figure SP-B2) (Dudek 2011).

#### ***Recent***

After 1980, banning the use of DDT and reduced human persecution led to dramatic population increases in North America. Although populations have increased in California (see Population Status and Trends), recovery in the desert region encompassing the Plan Area remains slow. At the time of publication of the Pacific Bald Eagle Recovery Plan, wintering populations within, or in the vicinity of, the Plan Area included 10 to 15 individuals at Lakes Havasu and Mead and 27 individuals in the Big Bear Lake area (USFWS 1986). As of 1997, there were two recorded bald eagle nesting territories outside the Plan

Area in western Riverside County and southwestern San Bernardino County, respectively (CDFG 1997). There are 15 recent (i.e., since 1990) bald eagle occurrences within the Plan Area database in the following areas: Lake Havasu, south of the Salton Sea, Elizabeth Lake on the north flank of the San Gabriel Mountains, the Ridgecrest area, and Tinemaha Reservoir in the Owens Valley (Figure SP-B2) (Dudek 2011).

## Natural History

### Habitat Requirements

Bald eagles typically breed in forested areas adjacent to large bodies of water (Buehler 2000). Actual distance to water varies within and among populations, and in some cases, distance to water is not as important as the foraging quality that is present, as defined by diversity, abundance, and vulnerability of the prey base (Livingston et al. 1990) as well as by the absence of human development (McGarigal et al. 1991). Diurnal perch habitat is characterized by the presence of tall, easily accessible trees adjacent to foraging habitat, usually away from human disturbance (Buehler 2000). Table 1 lists primary habitat associations and parameters for the bald eagle.

**Table 1.** Habitat Associations for Bald Eagle

Land Cover Type	Land Cover Use	Habitat Designation	Habitat Parameters	Supporting Information
Upland tree-dominated conifer	Nesting/roosting, over	Primary habitat	Multistoried, old-growth, predominantly coniferous stands near water bodies that support prey	Direct observations and radio-telemetry studies
Shoreline/Riparian	Foraging/perching	Secondary habitat	Tall, easily accessible, often super-canopy trees adjacent to shoreline; perch-tree species highly variable, including coniferous and deciduous; dead trees preferred	Direct observations and radiotelemetry studies, and aerial surveys

Sources: USFWS 1986; Stalmaster 1987; Buehler et al. 1992.

### Foraging Requirements

Bald eagles hunt from perches or while soaring over suitable habitat, attempting to take most prey on the wing, but success varies greatly. Foraging requirements are highly variable and site-specific based upon availability (Todd et al. 1982; Stalmaster 1987). The species takes a variety of birds, including many species of waterfowl (*Anseriformes*) and gulls (*Laridae*); aquatic and terrestrial mammals, including common muskrats (*Ondatra zibethicus*) and hares (*Leporidae*); reptiles; amphibians; and crustaceans. It also consumes carrion of fish, birds, and mammals extensively wherever encountered at sites that provide disturbance-free access from the ground (Buehler 2000). About 99% of foraging attempts by wintering bald eagles in Arizona along the Colorado River were on fish (Buehler 2000). Important considerations for foraging habitat include suitable perches near foraging sites, shallowness of water (which brings fish closer to surface), and availability of waterfowl, particularly where hunting occurs and carcasses are available (Buehler 2000).

### Reproduction

Individuals generally breed after attaining adult plumage, usually acquired in the fifth year (Buehler 2000), but may not begin breeding until 6 or 7 years old (Gerrard et al. 1992). Pair formation occurs on breeding grounds or on wintering grounds (Harmata 1984). Nest building generally begins 1 to 3 months prior to egg laying. Nest sites include super-canopy trees and cliffs (Grubb and Eakle 1987). Nests may be the largest of all nests built by a single pair of birds (Brown and Amadon 1968) and are often reused each year. Territories may also contain alternate nests that are used by breeding pairs, especially after nesting failures (Buehler 2000). Typically, bald eagles produce only one brood per season, but replacement clutches are possible if eggs are lost during incubation, especially in southern latitudes (Buehler 2000). Clutch size is usually 1 to 3 eggs; incubation time is reported to be 35 days, with some reported variation (Herrick 1932). Incubation is performed mostly by females, but males also participate. Average annual reproductive rate in California, reported in the Pacific Bald Eagle Recovery Plan, was 0.94 young per occupied territory (USFWS 1986).

**Table 2.** Key Seasonal Periods for Bald Eagle

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Breeding			✓	✓	✓	✓	✓	✓	✓			
Migration			✓	✓	✓			✓	✓	✓	✓	

Notes: Southern adults (breeding south of 40°N) usually do not migrate but remain in the vicinity of the nest site.

Source: Buehler 2000.

### Movement

In California, many bald eagle pairs are year-round residents that winter in the vicinity of the nest site (Buehler 2000); they may move relatively short distances inland to lower elevations or in search of other food sources. Some pairs and, more often, juveniles move north or south along the Pacific Coast, depending on the season (USFWS 1986). Other immature individuals migrate north and west to spend fall and winter in coastal southeastern Alaska, following salmon runs (Swenson et al. 1986; Hunt et al. 1992). Migrants from Saskatchewan, Canada, winter in a broad region of the southwestern United States that includes California (Swenson et al. 1986, Hunt et al. 1992). Dispersal of juvenile bald eagles in California and the Pacific Northwest is less defined than migratory patterns of pairs; juveniles may wander substantially in a variety of directions (USFWS 1986). Estimates of home range and territory size vary widely based on nesting density, food supply, and method of study. Home range has been estimated at 2.6 square miles (6.6 square kilometers) at Klamath Lake, Oregon (Frenzel 1984), to approximately 250 square miles (648 square kilometers) in Arizona (Grubb et al. 1989). Territory size generally ranges from 0.5 to 2 square miles (1.3 to 5.23 square kilometers) (Buehler 2000).

**Table 3.** Spatial Behavior of the Bald Eagle

Type	Distance/Area	Location of Study	Citation
Home Range	6.6 to 401.2 km <sup>2</sup>	Western United States	Frenzel 1984, Grubb et al. 1989
Territory (defended home range)	1 to 2 km <sup>2</sup>	Western United States	Stalmaster 1987
Dispersal from natal site	Up to 328 km	Western United States	Harmata et al. 1999

**Note:** km – kilometer

### Ecological Relationships

Bald eagles are a top avian predator in localized portions of the Plan Area, including mature conifer forests in the vicinity of water bodies. They may directly compete with other raptors such as ospreys (*Pandion haliaetus*) and golden eagles (*Aquila chrysaetos*) for nest sites and food, other fish-eating birds (e.g., herons, gulls), and carrion-eating mammals such as coyotes (*Canis latrans*) and North American river otters (*Lutra canadensis*). Bald eagles will also forage in garbage dumps (Elliott et al. 2006, Sherrodd et al. 1976), but Elliott et al. (2006) concluded that eagles could not meet their energy demands through exclusively foraging in these areas because their foraging is inefficient due to the large number of potential pirates.

### Population Status and Trends

**Global:** Stable (NatureServe 2010)

**State:** Increasing (CDFG 2010)

**Within Plan Area:** Stable (CDFG 2010)

The annual Midwinter Bald Eagle Survey indicates that California's winter population of bald eagle appears to be at least stable, although varying from year to year and exceeding 1,000 birds some winters. The number of occupied territories in California has grown from 107 in 1990 to 323 in 2010 (CDFG 2011b). Typically, about half of California's wintering bald eagles are found in the Klamath Basin along the California-Oregon border, the location of the largest winter concentration of bald eagles in the contiguous United States (CDFG 2010).

Based on CDFG-coordinated breeding surveys, begun in 1973, the bald eagle is also experiencing an increase in the number of breeding territories and an expansion in its range throughout the state. The number of occupied breeding territories increased from 32 in 1977 to 94 in 1990, 105 in 1995, 151 in 1999, and peaked at 175 in 2003 (CDFG 2011b). Between 2001 and 2003, 14 new territories were discovered, extending the southern range to Lake Hemet in Riverside County. The breeding range of the bald eagle expanded from 8 counties in 1981 to 32 counties in 2003 when the number of occupied breeding territories peaked. By 2009 and 2010, however, the number of occupied breeding territories declined to 105, and the number of young produced, which peaked in 2003 at 150, declined to 58 in 2010 (CDFG 2011b). The bald eagle's main breeding population in California is still largely restricted to the northern part of the state in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties (Polite and Pratt 1999). Populations in Southern California remain low with only two successful nests documented since the year 2000 on Santa Catalina Island, and none within the Plan Area (CDFG 2011a).

### Threats and Environmental Stressors

With the banning of DDT, habitat loss is, and will likely continue to be, the most substantial long-term threat to bald eagle populations. Urban and recreational development, logging, mineral exploration and extraction, and human activities may adversely affect breeding, wintering, and foraging areas by causing declines in prey abundance and roost site availability. Historically, hunting has been a persistent and significant threat to bald eagle populations; of 1,429 eagles examined between 1963 and 1984, 22% were killed by gunshot. Collisions with infrastructure killed 23% from this same sample (Wood et al. 1990), and this threat has persisted while shooting mortality may have decreased (Fraser 1985). Environmental contaminants—historically in the form of pesticides (e.g., DDT) and currently from lead poisoning due to ingested lead pellets in carrion—are also a significant source of mortality for bald eagles (Buehler 2000). Human activities in proximity to bald eagle nesting territories are a continuing threat (Thelander 1973; Stalmaster and Kaiser 1998). Logging, recreational development, and other human activities near bald eagle nests are associated with nest abandonment

(Thelander 1973). In northwest Washington, feeding activity was found to decline exponentially with increased recreational activity (Stalmaster and Kaiser 1998). Foot traffic resulted in flushing at the farthest distances, but boat activities accounted for a greater proportion of the disturbances (Stalmaster and Kaiser 1998). A study conducted in Boulder Open Space in the vicinity of Boulder, Colorado, showed that bald eagles were scarce at point count stations in plots with approximately 5% to 7% urbanization; this species occurred on only 1 plot in 15 where urban uses exceeded 5% of the plot (Berry et al. 1998)

### Conservation and Management Activities

A blueprint for regional bird conservation that encompasses the Plan Area, the Sonoran Joint Venture Bird Conservation Plan, lists the bald eagle as a species of regional concern, provides habitat discussions and conservation recommendations, and identifies focus areas for conservation action (Sonoran Joint Venture Technical Committee 2006). Cooperating agencies in California and individuals annually monitor the breeding status of all known and new nesting territories in the California. This interagency effort is coordinated by CDFG, which maintains a database on the annual status of all known territories, as reported previously in the discussion of population trends. Data are submitted annually by various partners using the California Bald Eagle Nesting Territory Survey Form. California also participates in the Midwinter Bald Eagle Survey, as previously discussed. This annual, nationwide survey is carried out by volunteers and agencies in wintering areas to sample population size and distribution of wintering birds. State and federal agencies and other entities have sponsored biological studies, including intensive ecological investigations undertaken by Pacific Gas and Electric Company and the U.S. Forest Service. Satellite radio transmitter tracking studies are being carried out by the Santa Cruz Predatory Bird Research Group (CDFG 2010). A number of bald eagle reintroduction programs, including the Ventana Wilderness Society and the Institute for Wildlife Studies, have helped to reestablish breeding populations along the Central Coast and on Santa Catalina Island (CDFG 2005).



## Data Characterization

The bald eagle is the most studied North American bird species, with as many as 2,500 published accounts (Buehler 2000). Populations have been monitored extensively across much of this species' range, and ongoing efforts to maintain comprehensive wintering and breeding population estimates in California have continued (see Conservation and Management Activities). However, comprehensive demographic studies (e.g., Allison et al. 2008) for California are lacking. In the context of human population growth in Southern California and the Plan Area, data gaps exist with respect to eagle population viability in human-developed landscapes to define tolerable development limits (Buehler 2000). As noted previously in the discussion of threats and stressors, a study in Colorado found that bald eagles were sensitive to levels of urban development (Berry et al. 1998), but similar studies in California have not been conducted.

## Management and Monitoring Considerations

Ongoing population monitoring is needed to document the extent of bald eagle recovery from endangerment, especially in Southern California where populations remain low (Buehler 2000), water resources are scarce, and human development remains a persistent threat to suitable habitat. Management of healthy bald eagle populations requires maintaining prey habitat in foraging areas, including maintaining mature and varied-age forest stands around water bodies to serve as perching and roosting sites. Many studies have documented the displacement of bald eagles due to human activity (Brown and Stevens 1997, Buehler et al. 1991, Stalmaster and Newman 1978). The potential impacts of human activities such as recreation (e.g., boating, foot activities) need to be managed and monitored to provide eagles secure areas for breeding and foraging activities.

## Predicted Species Distribution in Plan Area

There are 1,839,743 acres of modeled suitable primary habitat for bald eagle in the Plan Area. Modeled suitable habitat occurs throughout the Plan Area. Suitable habitat includes areas around all of the major rivers in the Plan Area, lakes, ponds, and reservoirs, as well

as all of the natural vegetation communities and agricultural areas in the Sierra Nevada. Appendix C includes specific model parameters and a figure showing the modeled suitable habitat in the Plan Area.

### Model Summary

#### **Primary Habitat—Nesting Habitat**

[Describe primary habitat.]

#### **Secondary Habitat—Foraging**

[Describe secondary habitat.]

### Model Results

[Summarize model results.]

## Literature Cited

75 FR 8601–8621. Proposed Rule: “12-Month Finding on a Petition to List the Sonoran Desert Population of the Bald Eagle as a Threatened or Endangered Distinct Population Segment.” February 25, 2010.

Allison, L.J., J.T. Driscoll, and K.V. Jacobson. 2008. *Demographic Analysis of the Bald Eagle in Arizona*. Nongame and Endangered Wildlife Program Technical Report 221. Arizona Game and Fish Department, Phoenix, Arizona.

Amadon, D. 1983. “The Bald Eagle and Its Relatives.” *Biology and Management of Bald Eagles and Osprey*, edited by D.M. Bird, pp. 1-4. Ste. Anne de Bellevue, Quebec: Harpell Press.

American Ornithologists’ Union. 1957. *Check-List of North American Birds*. 5th ed. Washington, D.C.: American Ornithologists’ Union.

Berry, M.E., C.E. Bock, and S.L. Haire. 1998. “Abundance of Diurnal Raptors on Open Space Grasslands in an Urbanized Landscape.” *Condor* 100:601–608.

- Brown, L. and D. Amodon. 1968. *Eagles, Hawks, and Falcons of the World*. New York, New York: McGraw-Hill Book Company.
- Brown, B.T. and L.E. Stevens. 1997. "Winter Bald Eagle Distribution is Inversely Correlated with Human Activity Along the Colorado River, Arizona." *Journal of Raptor Research* 31(1):7–10.
- Buehler, D.A. 2000. "Bald Eagle (*Haliaeetus leucocephalus*)." The Birds of North America Online, edited by A. Poole. Ithaca: Cornell Lab of Ornithology. Accessed February 10, 2011.  
<http://bna.birds.cornell.edu/bna/species/506doi:10.2173/bna.506>.
- Buehler, D.A., S.K. Chandler, T.J. Mersmann, J. D. Fraser, and J.K.D. Seegar. 1992. "Nonbreeding Bald Eagle Perch Habitat on the Northern Chesapeake Bay." *Wilson Bulletin* 104:540–545.
- Buehler, D.A., S.K. Chandler, T.J. Mersmann, J. D. Fraser, and J.K.D. 1991. "Effects of Human Activity on Bald Eagle Distribution on the Northern Chesapeake Bay." *Journal of Wildlife Management* 55(2): 282–290.
- CDFG (California Department of Fish and Game). 1997. "Recorded Bald Eagle Nesting Territories 1959–1997." Accessed February 10, 2011. [http://www.dfg.ca.gov/wildlife/nongame/t\\_e\\_spp/bald\\_eagle/97.html](http://www.dfg.ca.gov/wildlife/nongame/t_e_spp/bald_eagle/97.html).
- CDFG. 2005. "The Status of Rare, Threatened, and Endangered Plants and Animals of California 2000–2004." Accessed February 10, 2011. [http://www.dfg.ca.gov/wildlife/nongame/t\\_e\\_spp/new\\_te\\_rpt.html](http://www.dfg.ca.gov/wildlife/nongame/t_e_spp/new_te_rpt.html).
- CDFG. 2010. "Bald Eagles in California." Accessed February 10, 2011. [http://www.dfg.ca.gov/wildlife/nongame/t\\_e\\_spp/bald\\_eagle/index.html](http://www.dfg.ca.gov/wildlife/nongame/t_e_spp/bald_eagle/index.html).
- CDFG. 2011a. "Special Animals (898 taxa)." California Natural Diversity Database, Biogeographic Data Branch. January 2011. Accessed January 26, 2011. [http://www.dfg.ca.gov/biogeodata/cnddb/plants\\_and\\_animals.asp](http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp).

- CDFG. 2011b. "Bald Eagle Breeding Population Data for California, 1990–2010." Accessed February 10, 2011. [http://www.dfg.ca.gov/wildlife/nongame/t\\_e\\_spp/bald\\_eagle/breeding.html](http://www.dfg.ca.gov/wildlife/nongame/t_e_spp/bald_eagle/breeding.html).
- Dudek. 2011. "Species Occurrences–*Haliaeetus leucocephalus*." DRECP Species Occurrence Database. Updated November 2011.
- Elliott, K.H., J. Duffe, S.L. Lee, P. Mineau, and J.E. Elliott. 2006. "Foraging Ecology of Bald Eagles at an Urban Landfill." *The Wilson Journal of Ornithology* 118(3): 380–390.
- Fraser, J.D. 1985. "The Impact of Human Activities on Bald Eagle Populations–A Review." In *The Bald Eagle in Canada*, edited by J.M. Gerrard and T.M. Ingram, pp. 68–84 Headingley, Manitoba: White Horse Plains Publishing.
- Frenzel, R.W. 1984. "Environmental Contaminants and Ecology of Bald Eagles in South–Central Oregon." PhD dissertation; Oregon State University, Corvallis.
- Gerrard, J.M., P.N. Gerrard, G.R. Bortolotti, and E.H. Dzus. 1992. "A 24-Year Study of Bald Eagles on Besnard Lake, Saskatchewan." *J. Raptor Res.* 26:159–166.
- Grubb, T.G., S.J. Nagiller, W.L. Eakle, and G.A. Goodwin. 1989. "Winter Roosting Patterns of Bald Eagles (*Haliaeetus leucocephalus*) in North-Central Arizona." *Southwest Naturalist* 34:453–459.
- Grubb, T.G. and W.L. Eakle. 1987. "Comparative Morphology of Bald and Golden Eagle Nests in Arizona." *Journal of Wildlife Management* 51:744–748.
- Harmata, A.R. 1984. "Bald Eagles of the San Luis Valley, Colorado: Their Winter Ecology and Spring Migration." PhD dissertation; Montana State University, Bozeman.
- Harmata, A.R., G.J. Montopoli, B. Oakleaf, P.J. Harmata, and M. Restani. 1999. "Movements and Survival of Bald Eagles Banded in Greater Yellowstone Ecosystem." *Journal of Wildlife Management* 63:781–793.

- Herrick, F.H. 1932. "Daily life of the American Eagle: Early Phase." *Auk* 49:307–323.
- Hunt, W.G., R.E. Jackman, J.M. Jenkins, C.G. Thelander, and R.N. Lehman. 1992. "Northward Post-Fledgling Migration of California Bald Eagles." *Journal of Raptor Research* 26:19–23.
- Livingston, S.A., C.S. Todd, W.B. Krohn, and R.B. Owen Jr. 1990. "Habitat Models for Nesting Bald Eagles in Maine." *Journal of Wildlife Management* 54:644–653.
- McGarigal, K., R.G. Anthony, and F.B. Isaacs. 1991. "Interactions of Humans and Bald Eagles on the Columbia River Estuary." *Wildlife Monographs* 115.
- Mattsson, J.P. 1988. "Annotated Historical Records of Bald Eagles from the Northern United States." *U.S. Fish Wildlife Service Biological Report* 88(10).
- National Geographic. 2002. *National Geographic-Field Guide to the Birds of North America*. (Third Edition.) Page 108. Washington D.C.: National Geographic.
- NatureServe. 2010. NatureServe Explorer: An online encyclopedia of life [web application]. (Version 7.1.) NatureServe, Arlington, Virginia. Accessed February 9, 2011.  
<http://www.natureserve.org/explorer>.
- Oberholser, H.C. 1906. *The North American Eagles and Their Economic Relations*. Bulletin 27. Washington, D.C.: U.S. Department of Agriculture Biological Survey.
- Palmer, R.S., J.S. Gerrard, and M.V. Stalmaster. 1988. "Bald Eagle." in *Handbook of North American Birds. Vol. 4*, edited by R.S. Palmer, pp. 187–237. New Haven, Connecticut: Yale University Press.
- Peterson, R.T. 1990. *A Field Guide to Western Birds*. Boston, Massachusetts: Houghton-Mifflin Co.
- Polite, C., and J. Pratt. 1999. "Life History Accounts and Range Maps - California Wildlife Habitat Relationships System." Accessed

March 14, 2011. <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>.

Sherrod, S.K., C.M. White, and F.S.L. Williamson. 1976. "Biology of the Bald Eagle on Amchitka Island, Alaska." *Living Bird* 15:145–182.

Sibley, D. 2000. *National Audubon Society: The Sibley Guide to Birds*, page 512. New York, NY: Knopf.

Sonoran Joint Venture Technical Committee. 2006. *Sonoran Joint Venture: Bird Conservation Plan, Version 1.0*, edited by C.J. Beardmore. Tucson, Arizona: Sonoran Joint Venture.

Stalmaster, M.V. 1987. *The Bald Eagle*. New York, NY: Universe Books.

Stalmaster, M.V., and J.L. Kaiser. 1998. "Effects of Recreational Activity on Wintering Bald Eagles." *Wildlife Monographs* 137:1–46.

Stalmaster, M.V. and J.R. Newman. "Behavioral Responses of Wintering Bald Eagles to Human Activity." *The Journal of Wildlife Management* 42(3): 506–513.

Swenson, J.E., K.L. Alt, and R.L. Eng. 1986. "Ecology of Bald Eagles in the Greater Yellowstone Ecosystem." *Wildlife Monographs* 95.

Terres, J.K. 1991. *The Audubon Society Encyclopedia of North American Birds*. New York, NY: Wings Books.

Thelander, C.G. 1973. *Bald Eagle Reproduction in California, 1972–1973*. Wildlife Management Branch Administrative Report 73-5. Sacramento, California: California Department of Fish and Game.

Todd, C.S., L.S. Young, R.B. Owen, and F.J. Gramlich. 1982. "Food Habits of Bald Eagles in Maine." *Journal of Wildlife Management* 46:636–645.

USFWS (U.S. Fish and Wildlife Service). 1982. *Southwestern Bald Eagle Recovery Plan*. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

USFWS. 1983. *Northern States Bald Eagle Recovery Plan*. U.S. Fish and Wildlife Service, Denver, Colorado.

- USFWS. 1986. *Recovery Plan for the Pacific Bald Eagle*. U.S. Fish and Wildlife Service, Portland, Oregon.
- USFWS. 1989. *Southeastern States Bald Eagle Recovery Plan*. U.S. Fish and Wildlife Service, Atlanta, Georgia.
- USFWS. 1990. *Chesapeake Bay Region Bald Eagle Recovery Plan: Final Revision*. U.S. Fish and Wildlife Service, Newton Corner, Massachusetts.
- USFWS. 2010. *Post-Delisting Monitoring Plan for the Bald Eagle (Haliaeetus leucocephalus) in the Contiguous 48 States*. U.S. Fish and Wildlife Service, Divisions of Endangered Species and Migratory Birds and State Programs, Midwest Regional Office, Twin Cities, Minnesota. Accessed February 10, 2011.  
[http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BySpecies/FINAL%20BEPDM%2005-11-2010\\_for%20posting.pdf](http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BySpecies/FINAL%20BEPDM%2005-11-2010_for%20posting.pdf).
- Wood, P.B., D.A. Buehler, and M.A. Byrd. 1990. "Raptor Status Report: Bald Eagle." In *Proceedings of the Southeast Raptor Management Symposium and Workshop*, edited by B. Giron Pendleton, 13–21. Washington, D.C.: National Wildlife Federation.

