California Wildlife Habitat Relationships System
California Department of Fish and Wildlife
California Interagency Wildlife Task Group

COOPER'S HAWK *Accipiter cooperii*
Family: ACCIPITRIDAE Order: FALCONIFORMES Class: AVES
B116

Written by: C. Polite
Reviewed by: L. Kiff
Edited by: L. Kiff

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

A breeding resident throughout most of the wooded portion of the state. Breeds in southern Sierra Nevada foothills, New York Mts., Owens Valley, and other local areas in southern California. Ranges from sea level to above 2700 m (0-9000 ft). Dense stands of live oak, riparian deciduous, or other forest habitats near water used most frequently.

SPECIFIC HABITAT REQUIREMENTS

Feeding: Catches small birds, especially young during nesting season, and small mammals; also takes reptiles and amphibians. Hunts in broken woodland and habitat edges; catches prey in air, on ground, and in vegetation. Often dashes suddenly from perch in dense cover and pursues prey in air through branches. Sometimes runs prey down in dense thickets. Uses cover to hide, attack, and approach prey; also soars and makes low, gliding search flights.

Cover: Seldom found in areas without dense tree stands, or patchy woodland habitat.

Reproduction: Nests in deciduous trees in crotches 3-23 m (10-80 ft), but usually 6-15 m (20-50 ft), above the ground. Also nests in conifers on horizontal branches, in the main crotch, often just below the lowest live limbs. Nest is a stick platform lined with bark. Usually nests in second-growth conifer stands, or in deciduous riparian areas, usually near streams.

Water: Nesting and foraging usually occur near open water or riparian vegetation. Wetting or drowning of prey has been described.

Pattern: Frequents landscapes where wooded areas occur in patches and groves (Beebe 1974). Often uses patchy woodlands and edges with snags for perching. Dense stands with moderate crown-depths used for nesting.

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity.

Seasonal Movements/Migration: Mostly a yearlong resident. Some from more northern areas migrate into California; also moves downslope and south from areas of heavy snow in autumn and returns in spring.

Home Range: In Michigan, Craighead and Craighead (1956) measured 4 home ranges that averaged 311 ha (768 ac) and varied from 96-401 ha (237-992 ac); they estimated that 17 other home ranges averaged 207 ha (512 ac), and varied from 18-531 ha (45-1312 ac). They reported 1 home range in Wyoming of 205 ha (506 ac).

Territory: Males defend an area about 100 m (330 ft) around potential nest sites prior to pair formation (Brown and Amadon 1968). Nests in Oregon were 3.2 to 4.2 km (2 to 2.6 mi) apart (Jackman and Scott 1975). Elsewhere, nests have been reported 1.6 to 2.4 km (1 to 1.5 mi) apart (Meng 1951, Brown and Amadon 1968). Of 77 territories in California, in oak stands, mean distance between nests was 2.6 km (1.6 mi).

Reproduction: Breeds March through August; peak activity May through July. Single-brooded; clutch size 2-6, usually 4-5. Female incubates 35-65 days (Brown and Amadon 1968); male provides food during this period. Young altricial; yearly fledgling success is about 2 young/ pair (Craighead and Craighead 1956).

Niche: An important predator of small birds. Nestlings and immatures not yet skilled at catching prey may be killed by ravens, northern goshawks, and great horned owls (Beebe 1974). May compete, to a limited extent, with sharp-shinned hawks and northern goshawks.

Comments: Breeding numbers reduced in recent decades.

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California Wildlife Habitat Relationships System
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California Interagency Wildlife Task Group

TRICOLORED BLACKBIRD *Agelaius tricolor*
Family: ICTERIDAE Order: PASSERIFORMES Class: AVES
B520

Written by: S. Granholm
Reviewed by: L. Mewaldt
Edited by: R. Duke
Updated by: CWHR Program Staff, August 2008

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Mostly a resident in California. Common locally throughout Central Valley and in coastal districts from Sonoma Co. south. Breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs. Feeds in grassland and cropland habitats. Breeds locally in northeastern California. In winter, becomes more widespread along central coast and San Francisco Bay area (Grinnell and Miller 1944, McCaskie et al. 1979, Garrett and Dunn 1981) and is found in portions of the Colorado Desert. Numbers appear to be declining in California (DeHaven et al. 1975).

SPECIFIC HABITAT REQUIREMENTS

Feeding: In California studies summarized by Skorupa et al. (1980), animal matter, mostly insects and spiders, made up 86-91% of nestling and fledgling diet, and 28-96% of adult diet in spring and summer. Insect consumption in Sacramento Valley reached a peak of 39% in summer (Crase and DeHaven 1978). Seeds and cultivated grains, such as rice and oats, are other major foods, composing most of fall and winter diet. Forages on ground in croplands, grassy fields, flooded land, and along edges of ponds.

Cover: Seeks cover in emergent wetland vegetation, especially cattails and tules; also in trees and shrubs. Roosts in large flocks in emergent wetland or in trees (Terres 1980).

Reproduction: Usually nests in dense cattails or tules; also nests in thickets of willow, blackberry, wild rose, tall herbs. Nest usually located a few ft over, or near, fresh water; also may be hidden on ground among low vegetation. Builds nest of mud and plant materials. Highly colonial; nesting area must be large enough to support a minimum colony of about 50 pairs (Grinnell and Miller 1944).

Water: Nest located over or near fresh water, especially in emergent wetland. Drinking water probably required, at least when seeds and grains are major foods.

Pattern: Frequents fresh emergent wetlands. Nest may be located up to 6.4 km (4 mi) from foraging areas (Orians 1961).

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity.

Seasonal Movements/Migration: Not migratory over most of range, but leaves northeastern California in fall and winter, presumably migrating south. Flocks become nomadic in fall seeking food. In winter, flocks become more widespread from Marin to Santa Cruz cos. and in Sacramento River Delta.

Home Range: Breeders in Colusa and Yuba cos. traveled as far as 6.4 km (4 mi) from nest to feed; in each of 2 colonies, members foraged over more than 78 km² (80 mi²) (Orians 1961).

Territory: Breeding territory, which includes only vicinity of nest, usually about 3.3 m² (85 ft²), or less, in dense vegetation, but may be larger in less suitable cover (Orians 1961).

Reproduction: Usual breeding season mid-April into late July. Orians (1960) also reported active breeding in October and November in Sacramento Valley. Polygynous; each male may have several mates nesting in his small territory. A colony varies in size from a minimum of about 50 nests (Grinnell and Miller 1944) to over 20,000 in an area of 4 ha (10 ac), or less (DeHaven et al. 1975). Colonies were even larger in former decades. Apparently has highest nesting density of any blackbird in North America (Ehrlich et al. 1988). Clutch size usually 3 or 4 eggs, range 2-6; may raise 2 broods per yr (Terres 1980). Incubation lasts about 11 days; altricial young tended by female or by both parents. Young leave nest at about 13 days. Probably breeds first at 1 yr (Harrison 1978).

Niche: Highly gregarious in all seasons. Dense breeding colonies vulnerable to massive nest destruction by mammalian and avian predators, including Swainson's hawks (Bent 1958).

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GOLDEN EAGLE *Aquila chrysaetos*
Family: ACCIPITRIDAE Order: FALCONIFORMES Class: AVES
B126

Written by: C. Polite, J. Pratt
Reviewed by: L. Kiff
Edited by: L. Kiff

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Uncommon permanent resident and migrant throughout California, except center of Central Valley. Perhaps more common in southern California than in north. Ranges from sea level up to 3833 m (0-11,500 ft) (Grinnell and Miller 1944). Habitat typically rolling foothills, mountain areas, sage-juniper flats, desert.

SPECIFIC HABITAT REQUIREMENTS

Feeding: Eats mostly lagomorphs and rodents; also takes other mammals, birds, reptiles, and some carrion. Diet most varied in nonbreeding season. Needs open terrain for hunting; grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats. Soars 30-90 m (98-297 ft) above ground in search of prey, or makes low, quartering flights, often 7-8 m (23-26 ft) above ground. Occasionally searches from a perch and flies directly to prey (Carnie 1954). Sometimes pirates food from other predators. Hunting in pairs apparently common.

Cover: Secluded cliffs with overhanging ledges and large trees used for cover.

Reproduction: Nests on cliffs of all heights and in large trees in open areas. Alternative nest sites are maintained, and old nests are reused. Builds large platform nest, often 3 m (10 ft) across and 1 m (3 ft) high, of sticks, twigs, and greenery. Rugged, open habitats with canyons and escarpments used most frequently for nesting.

Water: No data found. Water needs probably met from prey.

Pattern: Uses rolling foothills and mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, and cliffs and rock outcrops.

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity.

Seasonal Movements/Migration: Mostly resident, but may move downslope for winter, or upslope after breeding season. Some migrate into California for winter.

Home Range: Home range probably same as territory. Size of home range related to prey density and availability, and openness of terrain.

Territory: Territory estimated to average 57 km2 (22 mi2) in Idaho (Beecham and Kocher 1975), 171-192 km² (66-74 mi²) in Montana (McGahan 1968), 23 km² (9 mi²) in Utah (Smith and Murphy 1973), 93 km² (36 mi²) in southern California (Dixon 1937), and 124 km² (48 mi²) in northern California (Smith and Murphy 1973).

Reproduction: Breeds from late January through August; peak in March through July. Clutch size 1-3, usually 2. Eggs laid early February to mid-May. Incubation 43-45 days (Beebe 1974), and nestling period usuallv 65-70 days.

Niche: Occasionally preys on domestic calves and lambs. May compete with ferruginous hawks for small mammals, and with California condors for carrion. May desert nest in early incubation if disturbed by humans (Thelander 1974).

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LOGGERHEAD SHRIKE *Lanius ludovicianus*
Family: LANIIDAE Order: PASSERIFORMES Class: AVES
B410

Written by: S. Granholm
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Edited by: R. Duke

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

A common resident and winter visitor in lowlands and foothills throughout California. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. In the Great Basin, from Inyo Co. north, population declines markedly from November through March. Rare on coastal slope north of Mendocino Co., occurring only in winter. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Sometimes uses edges of denser habitats (Grinnell and Miller 1944, McCaskie et al. 1979, Garrett and Dunn 1981).

SPECIFIC HABITAT REQUIREMENTS

Feeding: Eats mostly large insects; also takes small birds, mammals, amphibians, reptiles, fish, carrion, and various other invertebrates. Searches for prey from a perch at least 0.6 m (2 ft) above ground (Grinnell and Miller 1944), often much higher. Usually flies directly to prey on ground or in a shrub; sometimes hovers. Frequently skewers prey on thorn, sharp twig, wire barb, or forces it into a crotch to feed on or to cache for feeding later. Sometimes hawks aerial insects.

Cover: Often uses shrub or small tree (Bent 1950).

Reproduction: Builds nest on stable branch in densely-foliaged shrub or tree, usually well-concealed (Miller 1931, Bent 1950). Nest height 0.4 to 15 m (1.3 to 50 ft) above ground, occasionally higher (Harrison 1978). Nearly all of 77 nests found by Porter et al. (1975) in Colorado were below 4.5 m (15 ft).

Water: Not reported drinking in desert areas, although often seen near water (Miller and Stebbins 1964, Smyth and Coulombe 1971). Drinks and bathes in captivity (Miller 1931, Bent 1950), although captives can live on a meat diet without water (Bartholomew and Cade 1963).

Pattern: Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low or sparse herbaceous cover.

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity.

Seasonal Movements/Migration: A large portion of population in Great Basin, south to Inyo Co., departs for winter. In areas of residence, winter numbers augmented by visitors from north, and species is even more widespread than when breeding.

Home Range: Apparently same as territory. According to Bent (1950), forages within territory year-round.

Territory: Ten territories in open shrubland in Contra Costa and Kern cos. averaged 7.6 ha (18.7 ac), and varied from 4.5 to 16 ha (11-40 ac) (Miller 1931). A central or "headquarters" area within each territory, containing lookout perches, feeding areas, and a roost site, was defended vigorously. Territory defended by solitary individuals through nonbreeding season. Breeding territory usually a winter territory of parents. Smith (1973) also observed territory defended aggressively year-round. In Colorado, 77 nests were at least 400 m (1300 ft) apart, and territory was much smaller in diameter (Porter et al. 1975).

Reproduction: In California, lays eggs from March into May, and young become independent in July or August. A monogamous, solitary nester; clutch size 4-8 (Porter et al. 1975). May be double-brooded, (Harrison 1978), but among 77 nests in Colorado, Porter et al. (1975) found no second broods. Incubation lasts 14-15 days. Altricial young tended by both parents and leave nest at 18-19 days. Young may be driven off parents' territory 2-3 mo later (Miller 1931). Probably breeds first at 1 yr (Harrison 1978).

Niche: In Idaho sagebrush, substantially reduced density of nesting passerines by harassing and preying on adults and nestlings (Reynolds 1979). In southern Illinois, where population had declined, Anderson and Duzan (1978) found a correlation between DDE contamination and eggshell thinning, but no decline in nesting success; DDE may have reduced survival. Morrison (1979) found no evidence of eggshell thinning in California or Florida. Largest source of nest failure in Colorado was predation, probably by magpies (Porter et al. 1975).

Comments: Although populations have declined elsewhere, they have remained fairly stable in the Pacific states (Morrison 1981). L. I. mearnsi, the San Clemente loggerhead shrike, is Federal Endangered (California Department of Fish and Game 1989).

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TURKEY VULTURE *Cathartes aura*
Family: CATHARTIDAE Order: CICONIIFORMES Class: AVES
B108

Written by: G. Ahlborn
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Edited by: L. Kiff, G. Ahlborn

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Common in breeding season throughout most of California. Absent to uncommon in most of state in winter, with greatest concentrations in coastal regions. Not found at highest elevations in Sierra Nevada. Occurs in open stages of most habitats that provide adequate cliffs or large trees for nesting, roosting, and resting.

SPECIFIC HABITAT REQUIREMENTS

Feeding: Primarily eats carrion; rarely rotting fruit, live birds, eggs, or live mammals. A highly specialized static soarer, foraging aerially over roads, fields, open forests, and nearly all open habitats. Searches for carrion from the air and from a perch, aided by sense of smell. May rob young herons of food (Temple 1969).

Cover: Large trees, rock outcrops, and riparian thickets are used for roosting, perching, and sunning.

Reproduction: Cliffs, rock outcrops with rims, ledges, and cavities in trees, snags, and logs used for nesting.

Water: Drinks occasionally (Brown and Amadon 1968). Captives have been observed for 6-12 mo without free water (Hatch 1970).

Pattern: Suitable habitat consists of extensive open areas with protected nest and roost sites provided by large trees, snags, thickets, shrubs, and rock outcrops.

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity.

Seasonal Movements/Migration: Migrates south or downslope for winter. Some individuals in coastal regions winter in California. Remainder of population migrates, mostly to Central America, for the winter. Large flocks concentrate along well defined, traditional migration routes in autumn.

Home Range: No data found, but observations indicate turkey vulture uses extensive areas. Individuals regularly forage out 24-32 km (15-20 mi) from roost or nest.

Territory: Little evidence of territoriality found. In California, as many as 500 juveniles observed using communal roosts August through October.

Reproduction: A ritualized display including several individuals may precede mating (Loftin and Tyson 1965, Brown and Amadon 1968). Lays 1 clutch/ yr of 2 eggs, rarely 1 or 3.

Incubates 38-41 days (Brown and Amadon 1968). Semialtricial young hatch with eyes open; cared for by both parents for 80 days, or more.

Niche: Often feeds with ravens and condors, although apparently subordinate to each. Golden eagles and coyotes may keep turkey vulture from carcasses.

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California Wildlife Habitat Relationships System
California Department of Fish and Wildlife
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RUFOUS-CROWNED SPARROW *Aimophila ruficeps*
Family: EMBERIZIDAE Order: PASSERIFORMES Class: AVES
B487

Written by: D. Dobkin
Reviewed by: L. Mewaldt
Edited by: R. Duke, S. Granholm

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

A common resident of sparse, mixed chaparral and coastal scrub habitats (especially coastal sage) from Mendocino and Tehama cos. south to the Mexican border. Uncommon on lower slopes of western Sierra Nevada, and on Santa Cruz Island (Grinnell and Miller 1944). Most numerous in western portion of range in California. Frequents relatively steep, often rocky hillsides with grass and forb patches; also grassy slopes without shrubs, if rock outcrops are present.

SPECIFIC HABITAT REQUIREMENTS

Feeding: Forages on ground in herbage and in litter beneath shrubs, gleaning from ground and foliage; also gleans foliage of live oak (Verner and Boss 1980). Eats seeds, insects, spiders, grass and forb shoots. Eats mostly insects and spiders in breeding season (Bent 1968).

Cover: Secretive; seeks cover in shrubs, rocks, and grass and forb patches. Frequently found in open shrubland in valley foothill hardwood-conifer savannah and open chaparral (Verner and Boss 1980).

Reproduction: Nest concealed on ground at base of grass tussock or shrub, occasionally in a shrub.

Water: Frequents dry habitats. No additional information found.

Pattern: Breeds and feeds on steep, dry, herbage-covered hillsides with scattered shrubs and rock outcrops.

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity.

Seasonal Movements/Migration: Not migratory. May be some movement upslope postbreeding to 1220 m (4000 ft) in western Sierra Nevada (Gaines 1977b).

Home Range: Home range, estimated from nesting density, was about 1.5 ha (3.7 ac) in southern California chaparral (Cody 1974). In Arizona oak woodland, Balda (1969, 1970) reported 6 pairs and 11 pairs per 40 ha (100 ac).

Territory: In southern California coastal sage scrub, territory averaged about 0.8 ha (2.0 ac), range 0.5 to 1.3 ha (1.2 to 3.2 ac) (Bent 1968).

Reproduction: Breeds from mid-March to mid-June with a peak in May. Monogamous;

breeding territories may occur in groups (Pemberton 1910). Clutch size 2-5 eggs, usually 3 or 4. Incubation by female only, but altricial young tended by both parents (Harrison 1978).

Niche: Eggs and nestlings preyed upon by snakes and small mammals (Bent 1968). Friedmann (1971) reported the first record of cowbird parasitism in this species. May occur in family groups postbreeding (Ehrlich et al. 1988).

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YELLOW-HEADED BLACKBIRD *Xanthocephalus xanthocephalus*
Family: ICTERIDAE Order: PASSERIFORMES Class: AVES
B522

Written by: S. Granholm
Reviewed by: L. Mewaldt
Edited by: R. Duke
Updated by: CWHR Program Staff, August 2005 and August 2008

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Breeds commonly, but locally, east of Cascade Range and Sierra Nevada, in Imperial and Colorado River valleys, in the Central Valley, and at selected locations in the coast ranges west of the Central Valley. Nests in fresh emergent wetland with dense vegetation and deep water, often along borders of lakes or ponds. Forages in emergent wetland and moist, open areas, especially cropland and muddy shoresof lacustrine habitat. Restricted distribution in Central Valley in winter, occurring mainly in the western portion. Fairly common in winter in Imperial Valley. Occurs as a migrant and local breeder in deserts and along Orange county coast. Has bred, at least irregularly, as high as 2000 m (6600 ft) in San Bernardino Mts. (Grinnell and Miller 1944, McCaskie et al. 1979, Garrett and Dunn 1981).

SPECIFIC HABITAT REQUIREMENTS

Feeding: Adult feeds primarily on seeds and cultivated grains; eats insects in breeding season. In Sacramento Valley, insect consumption reached a peak of 20% in summer (Crase and DeHaven 1978). Young fed mostly insects, some spiders and snails (Willson 1966). Feeds in emergent vegetation, along moist shorelines, and in nearby grasslands and croplands, preferably near water or on moist ground. Often hawks flying insects (Bent 1958).

Cover: Dense emergent vegetation used for nesting, roosting, for cover during postbreeding molt, and other cover needs (Bent 1958).

Reproduction: Nesting colony located in dense emergent wetland of cattails, tules, other plants, often along border of lake or pond. Breeds only where large insects such as Odonata are abundant; nesting timed to coincide with maximum emergence of aquatic insects (Willson and Orians 1963). Nest placed in emergent vegetation (rarely willows), usually 0.2 to 0.9 m (0.5 to 3 ft) above water surface; typically near edge of emergent vegetation farthest from shore, above water 0.6 to 1.3 m (2-4 ft) deep (Bent 1958). Large wetlands preferred.

Water: Nest and roost always located over water, and most foraging takes place over water, near water, or on moist ground. Drinking water probably required, at least when seeds and grains are major foods.

Pattern: Nests, roosts, and does much foraging in fresh emergent wetland. Also feeds along shorelines and in nearby open fields, preferably on moist ground. Foraging ground may be as far as 1.6 km (1 mi) from nesting colony (Willson 1966), and probably considerably farther from winter roost.

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity.

Seasonal Movements/Migration: Much of California breeding population migrates south to winter. Uncommon as a winter resident in Central Valley, occurring mostly in southern portion; fairly common in Imperial Valley. Elsewhere, including coastal areas, rare and irregular in winter. Migrants occur outside breeding range in April, early May, and September, particularly in southern California deserts and coastal areas.

Home Range: Breeders in eastern Washington foraged up to 1.6 km (1 mi) from nesting territory (Willson 1966).

Territory: In scattered cattails in Imperial Co., Willson (1966) reported 24 territories averaging 116 m^2 (1250 ft^2), and 75 territories varying from 37-46 m^2 (400-500 ft^2). In eastern Washington, she found territories much larger, varying from an average of 455 m^2 (4900 ft^2) for 13 territories in bulrush to 2800 m^2 (30,000 ft^2) for 7 territories in scattered cattails. In Utah, 11 territories averaged 0.012 ha (0.03 ac) (Fautin 1940).

Reproduction: Breeding season lasts from mid-April to late July. Polygynous; each male may have 2-5 mates nesting on his territory (Willson 1966). Usually nests in a large colony with nests fairly closely spaced. Average clutch 4 eggs (range 2-5). Mostly raises a single brood per yr (Willson and Orians 1963). Incubation lasts 10-13 days. Altricial young tended by female or by both parents; leave nest at about 9-12 days, but do not fly until about 20 days. Probably breeds first at 1 yr (Harrison 1978).

Niche: Adults aggressively attack hawks, crows, and other large birds near territory. Probably the most important predators on eggs and young are mink, great horned owl, northern harrier, red fox, and muskrat (Bent 1958). Storms and changes in water level can be very destructive. Brood parasitism by brown-headed cowbird occurs occasionally (Friedmann 1963). Males may form flocks postbreeding, separate from females and young. May join very large mixed flocks in winter with other blackbirds, cowbirds, grackles (Ehrlich et al. 1988).

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BREWER'S SPARROW *Spizella breweri*
Family: EMBERIZIDAE Order: PASSERIFORMES Class: AVES
B491

Written by: D. Dobkin, S. Granholm
Reviewed by: L. Mewaldt
Edited by: R. Duke

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

A common summer resident and breeder east of the Cascade-Sierra Nevada crest, in mountains and higher valleys of Mojave Desert, and in those bounding southern end of the San Joaquin Valley. Breeds in treeless shrub habitats with moderate canopy, especially in sagebrush. Now mostly absent from former breeding grounds in southwestern California (Garrett and Dunn 1981). Breeds locally above pinyon-juniper belt (McCaskie et al. 1979), and apparently on western slope of Sierra Nevada (Verner and Boss 1980). Common in winter in open desert scrub and cropland habitats of southern Mojave and Colorado deserts, usually in areas with some herbaceous understory. Occurs as a rare fall transient west of Sierra Nevada, and as an uncommon fall transient and rare spring transient in southern coastal districts (Grinnell and Miller 1944, McCaskie et al. 1979, Garrett and Dunn 1981).

SPECIFIC HABITAT REQUIREMENTS

Feeding: Eats mostly insects and spiders in summer and seeds of grasses and forbs in winter. Picks seeds from ground, gleans and pursues insects on ground; occasionally feeds in low shrubs (Bent 1968).

Cover: In summer, often finds cover in sagebrush in extensive stands with moderate canopy unbroken by trees, usually 0.5-1.3 m (1.5-4.0 ft) in height. Similar shrub habitats, such as bitterbrush, are used to a lesser extent. In nonbreeding season, uses a variety of brushlands of similar structure (Grinnell and Miller 1944), plains, and fields (Garrett and Dunn 1981).

Reproduction: Nest is a cup of dry grass stems, forbs, and rootlets lined with fine grasses, rootlets, and hairs (Harrison 1978). Nest usually located in center of a sagebrush or other shrub up to 1.2 m (3.9 ft) above ground, but usually less than 0.3 m (1 ft). Rarely nests on ground.

Water: Commonly drinks and bathes, but may not require free water (Linsdale 1938). Apparently can meet water needs by eating insects (Ohmart and Smith 1970), and can subsist on dry seeds for 3 wk (Ehrlich et al. 1988).

Pattern: Breeds in extensive shrub stands with moderate canopy, especially sagebrush. Winters in open desert scrub and similar habitats, plains, and fields.

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity.

Seasonal Movements/Migration: Breeding populations present mostly May through August. Not known whether wintering populations represent California breeders or migrants

from elsewhere. Present for wintering mostly September through April. Migrants elsewhere in California occur mostly in September and October and April and May. May move upslope postbreeding.

Home Range: An individual chased by Linsdale (1938) remained within an area 150 yd in diameter (136 m), suggesting its breeding home range. In Wyoming sagebrush, density was 30-40 pairs per 40 ha (100 ac). In Montana, Best (1972) found 45-50 pairs per 40 ha (100 ac) in unsprayed sagebrush, and 15-33 pairs per 40 ha (100 ac) in the first yr after herbicide spraying that killed all sagebrush. Gashwiler (1977) reported 27-36 pairs per 40 ha (100 ac) in Oregon sagebrush. In successional brushfields in Sierra Co., Bock and Lynch (1970) reported 3.6 pairs per 40 ha (100 ac). In the same area, Savidge (1978) found 45 pairs per 40 ha (100 ac) in unsprayed brush, and 22.3 pairs per 40 ha (100 ac) in a matched plot sprayed heavily with herbicide.

Territory: No data found.

Reproduction: Breeds primarily from May through August with a peak in June. Usually lays 3 or 4 eggs per clutch, occasionally 5. Incubation 11-13 days; altricial young fledge in 8-9 days (Harrison 1978, Ehrlich et al. 1988).

Niche: Wyoming sagebrush habitat was abandoned after herbicide spraying (Schroeder and Sturges 1975). Density declined after spraying in Montana sagebrush (Best 1972), and in successional brushfields in Sierra Co. (Savidge 1978). Apparently an uncommon cowbird host (Ehrlich et al. 1988).

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NORTHERN HARRIER *Circus cyaneus*
Family: ACCIPITRIDAE Order: FALCONIFORMES Class: AVES
B114

Written by:C. Polite
Reviewed by: S. Bailey
Edited by: S. Bailey

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3000 m (10,000 ft). Breeds from sea level to 1700 m (0-5700 ft) in the Central Valley and Sierra Nevada, and up to 800 m (3600 ft) in northeastern California. Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Permanent resident of the northeastern plateau and coastal areas; less common resident of the Central Valley. Widespread winter resident and migrant in suitable habitat. California population has decreased in recent decades (Grinnell and Miller 1944, Remsen 1978), but can be locally abundant where suitable habitat remains free of disturbance, especially from intensive agriculture. Breeding population much reduced, especially in southern coastal district. Destruction of wetland habitat, native grassland, and moist meadows, and burning and plowing of nesting areas during early stages of breeding cyle, are major reasons for the decline (Remsen 1978).

SPECIFIC HABITAT REQUIREMENTS

Feeding: Feeds mostly on voles and other small mammals, birds, frogs, small reptiles, crustaceans, insects, and, rarely on fish. Makes low, quartering flights 1-9 m (3-30 ft) above open ground. Dives from flight or hover; rarely perches and pounces on prey.

Cover: Uses tall grasses and forbs in wetland, or at wetland/field border, for cover; roosts on ground.

Reproduction: Nests on ground in shrubby vegetation, usually at marsh edge (Brown and Amadon 1968). Nest built of a large mound of sticks on wet areas, and a smaller cup of grasses on dry sites. Mostly nests in emergent wetland or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water.

Water: No data found on water requirements, but frequents aquatic habitats. Home range usually includes fresh water.

Pattern: Mostly found in flat, or hummocky, open areas of tall, dense grasses, moist or dry shrubs, and edges for nesting, cover, and feeding.

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity.

Seasonal Movements/Migration: Some individuals migrate into California; others migrate through to Central America or northern South America.

Home Range: In Utah, 5 breeding home ranges averaged 429 ha (1060 ac), and varied

from 363-518 ha (896-1280 ac). In Michigan, individuals flew 1.6 to 8.8 km (1 to 5.5 mi) daily from a communal roost to foraging areas. Daily foraging areas varied from 12-16 ha (30-40 ac) to 259 ha (640 ac) (Craighead and Craighead 1956). Also in Michigan, 15 breeding home ranges averaged 405 ha (1000 ac), and varied from 98-770 ha (243-1920 ac). In Wisconsin, the breeding home range of 1 radio-tagged pair included an area 2 x 4.4 km (1.25 x 2.75 mi), or 890 ha (2200 ac) (Hamerstrom and Wilde 1973).

Territory: In Manitoba, territory extended 28 ha (96 ac) around nests (Hecht 1951). Very defensive of territory; will attack other, more formidable birds of prey, and humans during breeding season.

Reproduction: Breeds April to September, with peak activity June through July. Single-brooded; clutch averages 5 eggs, range 3-12. Female incubates while male provides food. Nestling period lasts about 53 days (Craighead and Craighead 1956). Breeding pair and juveniles may roost communally in late autumn and winter.

Niche: Competes with buteos, especially red-tailed and red-shouldered hawks, for food. Often considered a diurnal counterpart of the short-eared owl. Population may increase with some agricultural practices (e.g., grain crops), provided that cover and nesting habitat is preserved or enhanced.

Comments: Formerly called marsh hawk.

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California Wildlife Habitat Relationships System
California Department of Fish and Wildlife
California Interagency Wildlife Task Group

MERLIN *Falco columbarius*
Family: FALCONIDAE Order: FALCONIFORMES Class: AVES
B128

Written by: C. Polite
Reviewed by: S. Bailey
Edited by: S. Bailey
Updated by: CWHR Program Staff, October 1999

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Uncommon winter migrant from September to May. Seldom found in heavily wooded areas, or open deserts. Frequents coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, edges, and early successional stages. Ranges from annual grasslands to ponderosa pine and montane hardwood-conifer habitats. Occurs in most of the western half of the state below 1500 m (3900 ft). A rare winter migrant in the Mojave Desert; a few records from the Channel Islands. Numbers have declined markedly in California in recent decades.

SPECIFIC HABITAT REQUIREMENTS

Feeding: Feeds primarily on small birds; also small mammals and insects. Frequents shorelines in winter and catches shorebirds. Searches while flying at low level; attacks with a short dive, or dash from above. Captures prey on ground or in air, after direct pursuit. Young may rely upon insects while developing predatory skills.

Cover: Dense tree stands close to bodies of water are needed for cover. Uses a wide variety of habitats.

Reproduction: Does not breed in California. Breeds in Alaska and Canada. Typically modifies existing corvid or hawk nest consisting of an open platform of sticks in a tree, usually a conifer (Warkentin and James 1988, Sieg and Becker 1990). Occasionally nests in cavities, cliffs, in a deserted building, or on ground (Craighead and Craighead 1956, Brown and Amadon 1968).

Water: Usually nests close to water.

Pattern: Frequents open habitats at low elevation near water and tree stands. Favors coastlines, lakeshores, wetlands.

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity.

Seasonal Movements/Migration: Winters in California from September to May. Wanders in search of abundant prey. Some individuals migrate as far as South America in winter.

Home Range: During winter, mean home range size of adults was observed to be 196 ha in Saskatoon (Warkentin and Oliphant 1990).

Territory: Aparently do not defend feeding territories (Becker and Sieg 1987, Warkentin and Oliphant 1990, Sodhi and Oliphant 1992). Feeding home range tend to overlap.

Intraspecifically aggressive while nesting.

Reproduction: Clutch of 4-5 eggs laid from late May into June. Incubates 28-32 days, and chicks fledge at about 24 days (Trimble 1972).

Niche: Because feeds mostly on birds, numbers probably have been reduced by pesticides. Potential avian predators are driven away as soon as they enter the territory; particularly intolerant of accipiters (Fox 1964, Bent 1938, Oliphant 1974).

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Life history accounts for species in the California Wildlife Habitat Relationships (CWHR) System were originally published in: Zeiner, D.C., W.F.Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California. Updates are noted in accounts that have been added or edited since original publication.