

SAGE THRASHER

Oreoscoptes montanus

Description

The sage thrasher is distinguished from other thrashers by its smaller size, short and straight bill, and relatively short tail. Plumage on the upper body is drab, brownish-gray with slightly darker feathers forming indistinct streaks, particularly on the crown. The bird has a pale line behind the ear-coverts, a face pattern formed by whitish supercilium, and a whitish malar region bordered by a black streak at the sides of the throat. The wings are slightly browner than the back and have two narrow white wing-bars. The tail is browner than the rest of the body and has white tipped outer rectrices. The under-parts of the body are off-white, streaked with dark brown blotches. The bill is black with a grayish lower mandible. The plumage remains similar throughout the year but flanks appear pale cinnamon when plumage is fresh in the fall (Reynolds et al. 1999).

Life history & behavior

An opportunistic ground forager and shrub nester.

Sage thrashers arrive on breeding grounds in March and April (Dillon 1998; Reynolds et al. 1999). Breeding in Colorado typically begins in late May and early June (Dillon 1998). The birds are conspicuous during breeding through activity and song, but are secretive around their nests (Reynolds et al. 1999). Adults will fly until they are within 10 meters of the nest and then typically travel on ground the remaining distance.

During summer the sage thrasher feeds primarily on ground insects such as ants and beetles, but also feeds on other arthropods, arachnids, plant material, berries and small fruit. It is apparently one of the few birds that will feed on Mormon crickets and their eggs (Ryser 1985). Sage thrasher winter feeding habits are unknown.

Nests are usually composed of coarse twigs, grasses and sometimes horsehair, sheep's wool or fur. Nest diameter averages 20 cm. Sage thrashers choose nest sites to minimize heat loss at night, gain heat in the early morning, and avoid direct exposure to the midday sun. They often create canopies of twigs, or sometimes use old nests to provide shade or concealment from aerial predators (Reynolds et al. 1999).

Sage thrashers breed as second-year birds and clutch size is 3 to 5 eggs. Incubation lasts 12 to 15 days. Eggs hatch over a period of 1 to 3 days. Young open their eyes on day 4. Brooding, performed by both parents, lasts 10 to 14 days. Double-brooding has been reported in southern Idaho (Reynolds et al. 1999).

Sage thrashers migrate in winter to arid and semiarid country south of their breeding range.

Population trends

In decline in the United States (Sauer et al. 2004) and Canada (Gebauer 2004)

Colorado trends tracked by MCB are as yet uncertain (T. Leukering, pers. comm.).

BBS annual average trend data 1966 – 2003 (Sauer et al. 2004):
 - 0.8% survey-wide (significant: $P=0.07$, $n=319$, $RA=8.55$)
 + 0.1% in Colorado (non-significant: $P=0.96$, $n=31$, $RA=6.24$)

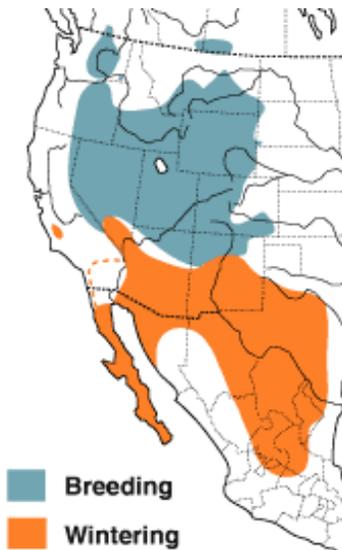
BBS estimated positive population trends for the 1966 – 2003 period in Washington, California, and Wyoming, whereas declining trends were estimated for the remaining western states (Sauer et al. 2004). For the most part, BBS data gathered on sage thrasher lack the precision to detect statistically valid trend changes of less than 5%.

A recent spatial analysis by (Dobkin and Sauder 2004) comparing BBS data between two periods (1963 through 1983 and 1984 through 2001) suggests that sage thrasher population trends are mixed. Areas predicted to have more than 5 birds per route remained stable in the western U.S., and increased by 6 percent in the shrubsteppe ecoregions. Abundances of sage thrashers on BBS routes showed no obvious spatial pattern across their range.

Range

Overall range has not changed significantly since European settlement (Reynolds et al. 1999), but loss of habitat has likely caused local extinctions of sage thrasher throughout its breeding range (Wiens and Rotenberry 1985).

Overall range map reproduced from Reynolds et al. 1999 with permission.



In their summer range, centers of sage thrasher abundance lie in the Great Basin (central Nevada and southeastern Oregon), eastern Idaho, and the Wyoming Basin (Sauer et al. 2004).

In winter, the sage thrasher retreats to southern Nevada, Arizona and New Mexico, west Texas and northern Mexico (Dillon 1998) with centers of abundance in west Texas and southeastern New Mexico (Sauer et al. 2004). Only rarely do individuals winter in Colorado (Andrews and Righter 1992).

Distribution patterns & abundance

In Colorado, sage thrashers breed in appropriate habitat in valleys and on foothills, mesas, and plateaus—possibly up to 10,000 ft (Dillon 1998).

In Colorado, the sage thrasher is a common summer resident in appropriate habitat in North Park, the San Luis Valley, the Gunnison Basin and Moffat County. According to the Colorado BBA project, centers of abundance are northwestern Colorado, the Gunnison Basin, and the San Luis Valley (Dillon 1998).

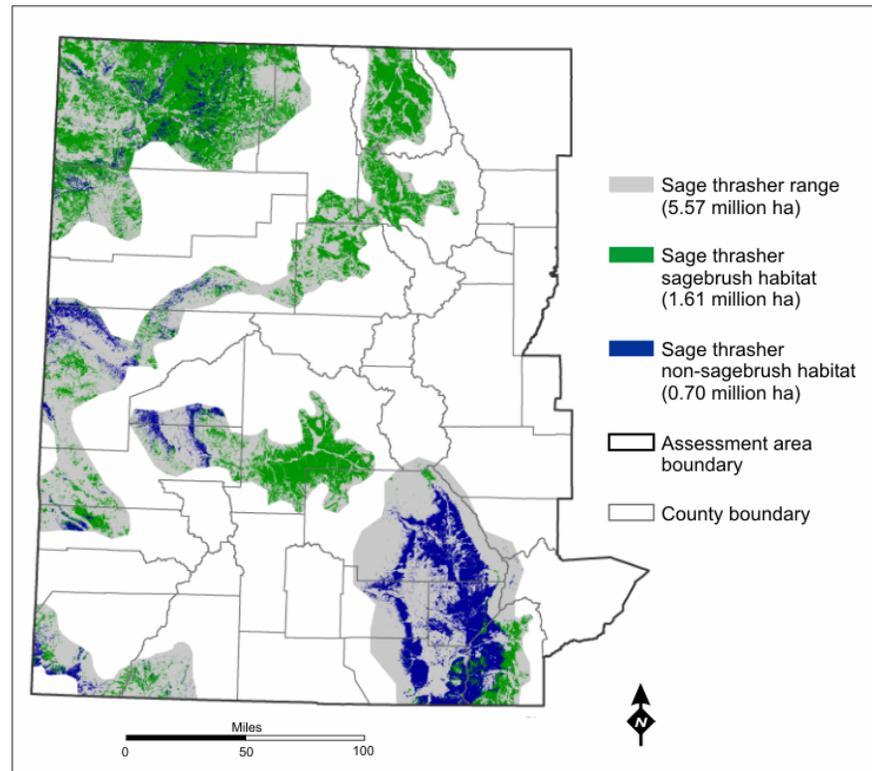
The sage thrasher is rare to uncommon locally in Middle Park, the Wet Mountain Valley, the valleys and lowlands of west-central and southwestern Colorado, and portions of the state's eastern foothills and southeastern plains (Andrews and Righter 1992). Colorado BBA field observers also documented low-density spotty distribution of sage thrashers in the

Uncompahgre Valley and the Colorado River basin between Middle Park and the Utah border (Dillon 1998).

The sage thrasher is a very rare winter resident in western valleys, lower foothills, and on the eastern plains near foothills (Andrews and Righter 1992). During spring and fall migrations, they are found throughout their summer distribution areas, but also in mountain parks and on the eastern plains, especially near the foothills (Andrews and Righter 1992).

Between 1999 and 2003, MCB estimated sage thrasher densities ranging from 0.02 to 0.08 birds per ha in sagebrush and 0.15 to 0.07 birds per ha in semi-desert shrublands (T. Leukering, pers. comm.).

The range of the sage thrasher in the assessment area encompasses approximately 5.57 million ha, with an estimated 2.31 million ha of suitable habitat



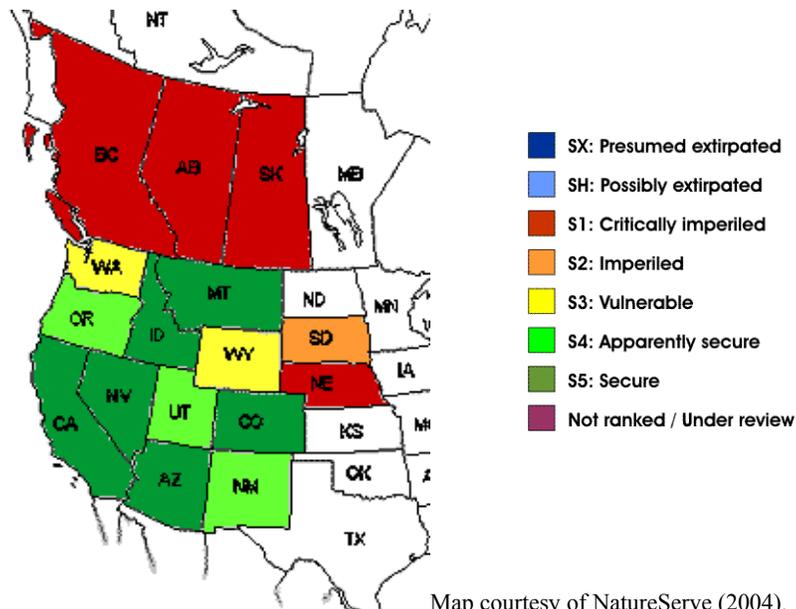
Conservation status

The species is at the edge of its range in S1 and S2-ranked states

Washington Species of Concern

BLM sensitive species, Wyoming

“Red listed” in British Columbia (under consideration for threatened or endangered listing)



Habitat

Experts consider the sage thrasher a sagebrush shrubland obligate (Braun et al. 1976; Knick and Rotenberry 2000; Rotenberry et al. 1999).

In the Colorado sagebrush assessment area, about 2.31 million ha of suitable habitat exists for the sage thrasher, 1.61 million ha of which is sagebrush shrublands (see figure in Colorado Distribution Patterns and Abundance).

Wiens and Rotenberry (1981) found a positive distributional

The sage thrasher is a sagebrush obligate dependent on large patches of sagebrush, and to a lesser extent, other shrubsteppe habitat for breeding (Reynolds et al. 1999).

Colorado BBA reported approximately 41 percent of breeding bird occurrences in tall desert shrublands, shortgrass prairie, mountain shrub habitat, pinyon-juniper woodlands, mat saltbush, western grasslands, and lowland riparian woodlands (Dillon 1998):

- 31% - mountain big sagebrush shrubland
- 29% - lowland sagebrush
- 21% - tall desert shrub
- 11% - grasslands or woodlands
- 8% - other shrublands (mountain shrub, mat saltbush)

MCB found sage thrashers in slightly higher densities in semi-desert shrublands than in sagebrush-dominated shrublands in 1999 and 2000, but this pattern was reversed in 2001, 2002, and 2003 (T. Leukering, pers. comm.).

Sage thrashers nest primarily in sagebrush branches or on the ground beneath sagebrush plants, specifically *A. t. tridentata* (basin big sagebrush), *A. t. wyomingensis* (Wyoming big sagebrush), *A. tripartita* (three-tip sagebrush), and occasionally *A. nova* (black sagebrush) (Reynolds et al. 1999). Researchers have also documented sage thrasher nests in cholla, greasewood, shadscale, saltbush, rabbitbrush, juniper, bitterbrush, horsebrush, and mountain shrublands (Reynolds et al. 1999; Andrews and Righter 1992).

Sage thrashers nest under or in wide-crowned sagebrush shrubs taller than 70 cm. Shrub height requirements for nesting appear to be quite particular:

correlation between sage thrasher and Brewer's sparrow in the shrubsteppe of the northwestern United States, suggesting the two species have similar habitat affinities.

sage thrashers choose tall shrubs and shrubs with wide crowns (Petersen and Best 1991). In fact, the presence of individual tall sagebrush shrubs on the landscape is probably the single most important local-scale breeding habitat component for the sage thrasher (Castrale 1982). In a south-central Idaho study, elevated nests occurred in shrubs averaging 90 cm in height and were placed at an average height of 24 cm off the ground. Ground nests occurred beneath sagebrush plants averaging 70 cm in height (Reynolds and Rich 1978). A southeastern Idaho study found that sage thrashers established 72 percent of 53 nests in sagebrush shrubs taller than 70 cm, and that shrubs of this height class represented only 7 percent of available shrubs. The placement of the nests tended to be just below the densest part of a shrub, regardless of whether the nest was on the ground or in the shrub (Petersen and Best 1991). A British Columbia study found that sites with medium-sized sagebrush (30 – 60 cm in height) with some larger clumps of sagebrush (>1 m in height) were preferred for nesting (Gebauer 2004).

Peterson and Best (1991) also found that nest sites in southeastern Idaho occurred in shrubs with 75 to 100 percent live branches. A study in Colorado found the average live growth on nest shrubs ranged from 60 to 80 percent (unpublished data by S. W. Hutchings cited in Reynolds et al. 1999).

In a continental-scale analysis, Rotenberry and Wiens (1980) found that sage thrashers were positively correlated with sagebrush cover, shrub height, horizontal patchiness, and bare ground; and negatively correlated with annual grass cover (Rotenberry and Wiens 1980). On a regional scale, sage thrasher densities were significantly positively correlated with vertical heterogeneity and "shrubbiness" (overall robustness of shrubs) in sagebrush habitat in the northwestern United States (Wiens and Rotenberry 1981), whereas other sagebrush obligates showed no statistically significant correlation to habitat physiognomic factors. Wiens and Rotenberry (1981) also found a positive distributional correlation between sage thrasher and Brewer's sparrow in the shrubsteppe of the northwestern United States, suggesting the two species have similar habitat affinities. In eastern Washington, sage thrashers showed stronger correlation with sagebrush cover than other shrubsteppe breeding birds, and were recorded in greatest abundance where sagebrush cover was 11 percent (Dobler et al. 1996). In Idaho, canopy coverage of sagebrush measured at 175 nest sites ranged from 11 to 44 percent (Rich 1980). A southwestern Idaho study showed that sage thrasher nests were more successful with increasing shrub patch size. Additionally, probability of site occupancy increased with sagebrush cover, total shrub cover, decreasing disturbance, and similarity of habitat within a 1-km radius (Knick and Rotenberry 1995).

Few data are available regarding understory type or coverage preference. Wiens and Rotenberry (1981) found that abundance of sage thrashers was positively correlated with bare ground and negatively correlated with annual grasses in the northwestern Great Basin.

In a southeastern Idaho study during 1976 and 1977, male sage thrashers defended breeding territories with a mean size of 1.14 ha in the first year, and territories averaging 1.86 ha the following year. Density estimates during this study were 0.88 and 0.54 birds per ha, respectively (Reynolds 1981).

Breeding bird densities recorded by MCB in Colorado sagebrush (0.02 to 0.08 birds per ha) are lower than average densities elsewhere. Estimates from 55 shrubsteppe survey sites in seven Washington counties were 0.204 birds per hectare in 1988 and 0.212 in 1989 (Dobler et al. 1996). A study in eastern Nevada found 0.40 birds per hectare in 1981, 0.12 in 1982, and 0.28 in 1983 (Medin 1992). In another study, breeding bird density measured on 14 plots in Nevada and Oregon ranged from 0.01 to 0.31 individuals per ha (Wiens and Rotenberry 1981).

During spring and fall migrations the sage thrasher is found primarily in arid or semi-arid country—in sagebrush or other arid shrub types, in grasslands with scattered shrubs, and in open pinyon-juniper woodland. Sage thrashers may wander during migration, with birds occasionally ranging as far east as the Atlantic seaboard (Reynolds et al. 1999). In winter, sage thrashers use arid and semi-arid scrub, brush, and thickets (Andrews and Righter 1992).

Threats & sensitivities

Threats to sage thrasher are primarily related to habitat loss, fragmentation, alteration, degradation (Reynolds et al. 1999)

In western Colorado, where sagebrush makes up about 70 percent of sage thrasher suitable habitat, threats to sagebrush are a major concern.

See [Chapter 6](#) for more detail about habitat estimates and predictive threats modeling for sage thrasher sagebrush habitat in the Colorado assessment area. [Chapter 4](#) presents rule sets for threats

For sage thrashers in the shrublands of the Intermountain West, loss, fragmentation, and degradation of sagebrush habitat are primary concerns (Knick and Rotenberry 2002; Paige et al. 1999; Paige and Ritter 1999).

In the Colorado sagebrush assessment area, where sagebrush makes up about 79 percent of sage thrasher suitable habitat, threats to sagebrush are major concerns also. Sage thrasher sagebrush habitat in the assessment area is at risk of four widespread threats modeled in the Colorado sagebrush conservation assessment and strategy: pinyon-juniper encroachment, encroachment by invasive herbaceous plants, residential development, and energy development.

Residential development probably poses the lowest threat of the four, with an estimated 1 percent of sage thrasher sagebrush habitat at high risk, 2 percent at moderate risk, and 12 percent at low risk. About 85 percent of sage thrasher sagebrush habitat is at no risk of residential development based on our predictive model. Residential development threats to sagebrush are fairly scattered, with hot spots around Craig, Steamboat Springs, Granby, the Eagle River Valley, Aspen Valley and the Roaring Fork Valley, Hotchkiss and Cedaredge in Delta County, Cortez, Mancos, and Durango.

Pinyon-juniper encroachment risk is also relatively low. Our predictive model estimated 16 percent of sage thrasher sagebrush habitat is at high risk of pinyon-juniper encroachment, while 24 percent is at moderate or low risk, and 60 percent is at no risk.

Risk of energy development is broadly moderate. About 58 percent of sage thrasher sagebrush habitat is at moderate risk of energy development in the Colorado sagebrush assessment area, 35 percent is at low or no risk, and 7 percent is at high risk. Energy development can result in destruction, degradation, and fragmentation of habitat via mechanisms described in [Chapter 2](#). Sagebrush habitat at highest risk of energy development is scattered throughout the western-most counties in the assessment area,

modeling in sagebrush habitat.

with larger hot spots clustered in Rio Blanco, Garfield, and southern La Plata Counties.

Over 99 percent of sage thrasher sagebrush habitat is at some degree of risk of encroachment by invasive herbaceous plants. Our model predicts 24 percent at high risk, 21 percent at moderate risk, and 54 percent at low risk. Sagebrush habitat at moderate or high risk of invasive herbaceous plant encroachment in sage thrasher range is mostly broadly scattered across the western-most counties at lower elevations. Moffat and Rio Blanco counties contain the largest contiguous patches of sagebrush habitat at high risk.

Sage thrashers are sensitive to sagebrush control; abundance declines have been recorded with the loss of shrubs. In Wyoming, abundance was lower on a 22-year old herbicide-treated site (shrub cover approximately 15 percent) than on an untreated site (shrub cover > 35 percent), and was not present on a 9-year old burned site (shrub cover < 10 percent) (Kerley and Anderson 1995). Castrale (1982) found thrashers persisting in sagebrush islands with tall shrubs within a burned site (10.2 percent shrub cover in islands; max height = 59.0 centimeters), but found no territories within the burn itself (0.0 percent shrub cover), or within plowed (11.8 percent shrub cover; max height = 44.8 centimeters) or chained (5.8 percent shrub cover; max height = 41.4 centimeters) sites reseeded with grasses. In southern Oregon, densities declined following herbicidal spraying and removal of sagebrush and reseeding with crested wheatgrass, where sagebrush cover decreased from 19-24 percent to 4-12 percent (Wiens and Rotenberry 1985). In Idaho, crested wheatgrass seedings did not support sage thrashers (Reynolds and Trost 1980).

Range management can directly and indirectly affect sage thrashers by removing sagebrush through burning, mechanical, or herbicide treatment, or by seeding with non-native grasses to increase livestock forage. Reduction of sagebrush cover to less than 10% is thought to negatively affect sage thrashers (Braun et al. 1976). Even the selective removal of only the large sagebrush plants in sage thrasher breeding habitat results in a decreased habitat utilization (Castrale 1982). Sage thrashers were less abundant on study sites in Wyoming where sagebrush cover was significantly reduced by herbicide treatment 22 years previously (Kerley and Anderson 1995).

Heavy grazing may directly affect sage thrashers through trampling of nests and sagebrush plants. Overgrazing may benefit sage thrashers by leading to the increase of sagebrush density and height (Saab et al. 1995), but it can also encourage the invasion of non-native annual grasses, namely cheatgrass (Welch 2005).

Monotypic dense stands of cheatgrass in sagebrush understory may interfere with foraging activities (Paige et al. 1999), and the influence of cheatgrass on the fire regime of sagebrush shrublands can lead to permanent conversion of sage thrasher breeding habitat to annual grasslands (Knick and Rotenberry 2000). Sage thrasher densities remained stable after a prescribed burn in Idaho left 50 percent of the sagebrush in a mosaic of burned and unburned areas, and reduced the total average percentage of sagebrush cover from 21 to 12 percent (Petersen and Best 1987). In Wyoming, sage thrashers did not utilize sites completely burned 9

years earlier (Kerley and Anderson 1995).

Sage thrashers reject cowbirds eggs quickly and are not highly prone to parasitism (Rich and Rothstein 1985). Predation by snakes and loggerhead shrikes can be a negative factor in the breeding success of sage thrashers (Reynolds 1979).

Research needs

The acceptable range of habitat requirements (physiognomic and floristic) is not well defined at either the regional or spatial scale in the assessment area. Because bird abundances do not necessarily imply favorability of habitat conditions or correlation with bird productivity, studies should couple population trend and demographics monitoring with investigation of nest success (including brood parasitism and predation) under alternate rangeland management regimes, over a spectrum of habitat conditions and geographic areas in Colorado. An understanding of patch size requirements and fragmentation effects is needed (synthesis by Reynolds et al. 1999).

Many aspects of sage thrasher biology are still unknown. Study of migration and wintering ecology is needed. Further details are needed on site fidelity, territory size, interspecific interactions, juvenile dispersal, diet and metabolism, social behavior in relation to breeding or wintering, life span and survivorship, and response to climatic changes on breeding or wintering sites (synthesis by Reynolds et al. 1999).

Management issues

Maintaining native sagebrush habitat with vertical heterogeneity, horizontal patchiness, and open understory dominated by native grasses and forbs should benefit the sage thrasher. Because patch size dynamics for the sage thrasher are important but not completely understood, maintaining the largest patches possible (e.g., “bigger is better”) should be a priority for fragmentation and area-sensitive species such as the sage thrasher. See [Chapter 3](#) for a discussion of patch size distribution of sagebrush in the Colorado sagebrush assessment area.

Methods for estimating long-term population trends that produce statistically powerful results are needed. The winter ecology of the sage thrasher is not well known and winter-range factors that could be contributing to declines are unclear (Knick and Rotenberry 2002).

Sage thrashers exhibit strong site fidelity and will return to nesting sites even after habitat alteration could negatively affect productivity (Knick and Rotenberry 2002; Wiens and Rotenberry 1985). This characteristic poses environmental sink risks to the species. It also confounds managers’ efforts to measure effects of habitat alterations in the short term.

About 42 percent of sage thrasher sagebrush habitat in the Colorado sagebrush assessment area is controlled by private landowners, posing a challenge for effective, integrated habitat management for the species. Nevertheless, almost 80 percent of the sagebrush habitat managed by non-private entities is managed by the BLM, making it the public entity best-positioned to have a positive impact on the species.

Our threats analysis did not consider non-sagebrush vegetation types, which provide a significant amount (about 30 percent) of the sage thrasher's habitat. Ideally, conservation planning and management of species of concern should consider all significant habitat types. Such an approach is beyond the scope of this assessment.

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