The Condor 87:294

FIRST RECORD OF THE EURASIAN KESTREL FOR CANADA

R. WAYNE CAMPBELL

The British Columbia Provincial Museum (BCPM) recently acquired a small series of birds and mammals collected and prepared by the late Leo Jobin during the 1940s and 1950s from the Cariboo region of British Columbia. The collection was recently discovered in the basement of a public school in Williams Lake, British Columbia, and donated to the museum by the local naturalists' club. The collection was in excellent condition, without insect or light damage, and contained original specimen labels.

While sorting through the collection, I discovered a specimen (now BCPM No. 15934) of a Eurasian Kestrel (*Falco tinnunculus*) that had been incorrectly identified by Jobin and labelled as a Prairie Falcon (*F. mexicanus*). The bird was labelled an unaged male, collected by L. Jobin (No. 183) on 10 December 1946 at Alkali Lake, 41 km south of Williams Lake. It appeared to be a normal, wild bird with the following measurements: wing 261 mm, tail 171 mm, and tarsus 41 mm. I compared the specimen with a series of birds in the National Museum of Natural History and Field Museum of Natural History and determined, by plumage and measurements, that it was actually an immature female.

I surmise that the specimen was either overlooked or ignored by Jobin because it could not be positively identified. Williams Lake is at the northern limit of the breeding range for Prairie Falcons in British Columbia (Munro and Cowan 1947) and, according to Beebe (1974), the species may winter this far north. Jobin probably expected the bird, then, to be a Prairie Falcon. If he had been satisfied with the identification, he probably would have published this winter occurrence (see Jobin 1952, 1953, 1954).

The only other North American records of the Eurasian Kestrel are from Nantucket, Massachusetts, 29 September 1887 (Cory 1888), Cape May Point, New Jersey, 28 September 1972 (Clark 1974), and the Aleutian Islands, Alaska, September 1978 (Roberson 1980; AOU 1983). The British Columbia specimen is the first Canadian record and chronologically represents (see Clark 1974) the second record for North America.

LITERATURE CITED

AMERICAN ORNITHOLOGISTS' UNION. 1983. Check-list of North American birds. 6th ed. American Ornithologists' Union, [Washington, DC].

BEEBE, F. L. 1974. Field studies of the Falconiformes of British Columbia. B.C. Prov. Mus. Occ. Paper No. 17, Victoria, British Columbia.

CLARK, W. S. 1974. Second record of the Kestrel (*Falco tinnunculus*) for North America. Auk 91:172.

CORY, C. B. 1888. The European Kestrel in Massachusetts. Auk 5:110.

JOBIN, L. 1952. Some uncommon birds collected in the Caribou parkland biotic area of British Columbia. Murrelet 33:9.

JOBIN, L. 1953. Notes on some unusual birds in the Cariboo district of British Columbia. Murrelet 34:31.

JOBIN, L. 1954. Notes on the Prairie Falcon and the Peregrine Falcon in the Cariboo district of British Columbia. Murrelet 35:11.

MUNRO, J. A., AND I. MCT. COWAN. 1947. A review of the bird fauna of British Columbia. B.C. Prov. Mus. Spec. Publ. No. 2, Victoria, British Columbia.

ROBERSON, D. 1980. Rare birds of the west coast. Woodstock Publishers, Pacific Grove, CA.

Vertebrate Zoology Division, British Columbia Provincial Museum, Victoria, British Columbia V8V 1X4, Canada.
Received 10 January 1984. Final acceptance 15 January 1985.

The Condor 87:294–295

EFFECT OF PRESCRIBED BURNING ON PLACEMENT OF SAGE SPARROW NESTS

B. M. WINTER

AND

L. B. BEST

The Sage Sparrow (*Amphispiza belli*) commonly breeds in the sagebrush- (*Artemisia* spp.) dominated rangelands of the western United States. Braun et al. (1976) suggested that these sparrows are almost entirely dependent on sagebrush habitat; and Rich (1980), Reynolds (1981), and Petersen and Best (1985) reported all located Sage Sparrow nests to be within canopies of sagebrush plants. Although nests usually are positioned within sagebrush plants (Miller 1968), some are placed on the ground in depressions beneath the plants (Ridgway 1877, Linsdale 1938). Miller (1968) and Green (1981) stated that Sage Sparrows also will nest in or under other shrub species when such are available.

We report here on the placement of Sage Sparrow nests in a sagebrush-grassland before and after prescribed burning. This information is important in evaluating the effects of such habitat alteration on the breeding ecology of this species.

Our study area was near the western boundary of the Idaho National Engineering Laboratory (INEL) in southeastern Idaho, 10 km south of Howe, Butte County. The habitat is classified as sagebrush steppe (Kuchler 1964). Dominant shrub species included big sagebrush (*A. tridentata*) and green rabbitbrush (*Chrysothamnus viscidiflorus*), with major grasses being bluebunch wheatgrass (*Agropyron spicatum*), Indian rice grass (*Oryzopsis hymenoides*), and bottlebrush squirreltail (*Sitanion hystrix*). The average temperatures for May, June, and July were 9.4, 15.0, and 19.4°C in 1982, and 10.0, 14.4, and 18.3°C in 1983 (U.S. Environmental Data Service 1982, 1983). Total rainfall was 2.6, 1.8, and 1.3 cm in 1982, and 1.6, 4.5, and 3.3 cm in 1983, for the three respective months. A prescription burn was conducted on the study area by Bureau of Land Management personnel in September 1982 as part of a fire ecology study.

Vegetation composition was measured on the 12-ha study plot (gridded throughout at 25-m intervals) in July of 1982 (preburn) and 1983 (postburn) by using the Daubenmire (1959) canopy coverage technique. In both years, a 20 × 50-cm quadrat sample was taken 6 m from each grid marker in each of the four cardinal directions. Canopy coverage data were arc sine transformed before analysis. Nests were found by using a rope-dragging technique (Rodenhouse and Best 1983) and by searching territories of individual Sage Sparrow pairs. All pairs breeding on the study plot were intensively monitored throughout the nesting season, and virtually all nests were located. Initiation dates for all nests were determined by backdating from known stages in the nesting cycle; nests started before 1 June were considered early nests, and those started on or after 1 June, late nests.

The prescribed burn resulted in a mosaic of burned and unburned patches that were well interspersed and varied in size (Winter 1984). Thirty-six percent of the vegetation on the study plot remained unburned, 47% was burned so severely that virtually all plant cover was consumed by the fire, and 17% was characterized as edge (narrow strips of partly heat-killed vegetation at the interface of burned and unburned areas).

Prescribed burning significantly reduced sagebrush coverage from 26.1 ± 0.9% (mean ± SE) in 1982 to 13.3 ± 0.9% in 1983 (t = 10.05, df = 440, $P < 0.001$). Percent coverage of green rabbitbrush and grasses did not change the first year after burning, but forb coverage increased significantly (t = 3.28, df = 440, $P < 0.001$) from 3.8 ± 0.2% preburn to 5.1 ± 0.3% postburn.

In 1982, 34 nests were found, and all were placed within sagebrush plant canopies. In 1983, after prescribed burning, 23 of 29 nests (79%) were located within sagebrush plants. Five nests were on the ground in depressions under small sagebrush plants, and one nest was at the edge of a burned patch within a bluebunch wheatgrass clump, unassociated with a sagebrush plant. A chi-square test of independence revealed a highly significant ($\chi^2 = 7.79$, df = 1, $P < 0.01$) difference in nest placement (within canopy vs. not within canopy) between preburn and postburn nesting seasons. Thus, reduction in sagebrush coverage evidently altered the nesting pattern of Sage Sparrows.

Nest placement also differed seasonally the first year after burning. Fifty percent (six) of all early nests were placed in sites other than sagebrush canopies, whereas all 17 late nests were within sagebrush plants. The difference between early and late season nest placement was significant ($\chi^2 = 6.37$, df = 1, $P < 0.025$). Rich (1978) documented a similar seasonal shift in nest placement between first and second nests of Sage Thrashers (*Oreoscoptes montanus*). He suggested that early season nests on the ground may benefit from warmer temperatures at ground level and that later nests placed in the sagebrush canopy may benefit from increased air circulation and convective heat loss.

Because 36% of the study area was not burned, it is unlikely that sagebrush plants as such were in limited supply for postburn nesting. However, the fire selectively burned areas with taller sagebrush plants. Average sagebrush height before burning (48.6 ± 0.8 cm) was significantly taller than after burning (43.1 ± 1.1 cm; t = 4.0, df = 779, $P < 0.001$); thus, it is possible that few remaining shrubs were suitable for nesting because of their small size. Similarly, Reynolds (1981) found that Sage Thrashers nesting within sagebrush canopies selected larger plants for nesting than did those nesting on the ground beneath sagebrush plants. The distances between the nests and the tops of the sagebrush plants were similar in both instances; thus, he concluded that for Sage Thrashers, there is an optimal amount of vegetation required above the nest. Petersen and Best (1985) found that Sage Sparrows selected significantly taller shrubs for nesting than those generally available and suggested that shrubs below a certain size may be avoided so as to nest above the ground and still have sufficient cover above the nest for concealment.

In our study, large shrubs probably were sufficiently abundant in 1982 to permit nests to be placed within shrubs and still maintain adequate cover above the nests. After burning, with large shrubs in short supply, early-nesting birds may have had to place their nests beneath shrubs to obtain enough cover and concealment. Birds nesting later may have relinquished the greater nest concealment at ground level in order to avoid high temperatures. More study is needed before the relationships between nest-site selection, canopy cover, and nest microclimate can be fully understood.

These data were collected incidental to research sponsored by the Office of Health and Environmental Research, U.S. Department of Energy. This paper is a contribution from the INEL Radioecology-Ecology program. We thank Sonia Winter and Douglas Sheeley for their assistance in the field, and T. D. Reynolds and C. H. Trost for reviewing the manuscript. This is Journal Paper No. J-11426 of the Iowa Agriculture and Home Economics Experiment Station, Ames, Iowa Project No. 2468.

LITERATURE CITED

Braun, C. E., M. F. Baker, R. L. Eng, J. S. Gashwiler, and M. H. Schroeder. 1976. Conservation committee report on effects of alteration of sagebrush communities on the associated avifauna. Wilson Bull. 88:165–171.

Daubenmire, R. F. 1959. A canopy-coverage method of vegetational analysis. Northwest Sci. 33:43–64.

Green, B. H. 1981. Habitat selection and utilization by Sage Sparrows. (*Amphispiza belli*) in a cold desert mixed shrub community. M.Sc. thesis, Brigham Young Univ., Provo, UT.

Kuchler, A. W. 1964. Potential natural vegetation of the conterminous United States. American Geographic Society Spec. Publ. 36.

Linsdale, J. M. 1938. Environmental responses of vertebrates in the Great Basin. Am. Midl. Nat. 19:1–206.

Miller, A. H. 1968. *Amphispiza belli nevadensis*: Northern Sage Sparrow, p. 1004–1012. *In* O. L. Austin, Jr. [ed.], Life histories of North American cardinals, grosbeaks, buntings, towhees, finches, sparrows, and allies. U.S. Natl. Mus. Bull. 237.

Petersen, K. L., and L. B. Best. 1985. Nest-site selection by Sage Sparrows. Condor 87:217–221.

Reynolds, T. D. 1981. Nesting of the Sage Thrasher, Sage Sparrow, and Brewer's Sparrow in southeastern Idaho. Condor 83:61–64.

Rich, T. D. G. 1978. Nest placement in Sage Thrashers. Wilson Bull. 90:303.

Rich, T. D. G. 1980. Nest placement in Sage Thrashers, Sage Sparrows, and Brewer's Sparrows. Wilson Bull. 92:362–368.

Ridgway, R. 1877. Part 3: ornithology, p. 303–669. *In* United States Geological Exploration of the Fortieth Parallel. Vol. 4, Government Printing Office, Washington, DC.

Rodenhouse, N. L., and L. B. Best. 1983. Breeding ecology of Vesper Sparrows in corn and soybean fields. Am. Midl. Nat. 110:265–275.

U.S. Environmental Data Service. 1982. Climatological Data, Idaho, Vol. 85. National Climatic Center, Asheville, NC.

U.S. Environmental Data Service. 1983. Climatological Data, Idaho, Vol. 86. National Climatic Center, Asheville, NC.

Winter, B. M. 1984. Effects of prescribed burning on avian foraging ecology and arthropod abundance in sagebrush-grassland. M.Sc. thesis, Iowa State Univ., Ames.

Department of Animal Ecology, Iowa State University, Ames, Iowa 50011. Received 7 May 1984. Final acceptance 22 December 1984.