

YELLOW-BELLIED SAPSUCKER, *SPHYRAPICUS VARIUS*, IN ALASKA

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The Yellow-bellied Sapsucker (*Sphyrapicus varius*), which breeds in the temperate and boreal forests of interior North America, has not been reported previously from Alaska. However, recent observations show that it is currently a rare summer visitant and breeder in extreme east-central Alaska, and the presence of old sap well scars on paper birch trees (*Betula papyrifera*) shows that over the years it has been a regular visitant and probable breeder over a much greater portion of the northern boreal forest regions of central Alaska (Fig. 1). The closely related, western Red-breasted Sapsucker (*S. ruber*), which drills similar sap wells, is a fairly common breeder in the spruce-hemlock coastal forests of southeastern Alaska and is rare in the extension of this forest type in south-coastal Alaska as far west as Kodiak (Kessel and D. D. Gibson, unpubl. data). The ranges of the two species generally do not overlap in Alaska, although one sight record of a Yellow-bellied Sapsucker has been reported from south-coastal Alaska—on Wooded Island off Montague Island, Prince William Sound, on 9 June 1977, by S. E. Quinlan and W. A. Lehnhausen (pers. comm.).

METHODS

Data used for this paper were derived from opportunistic field observations and from examination of the characteristic sap well scars left on trees by these sapsuckers (Fig. 2). It is possible to determine the time of old sapsucker workings by examining cross-sections of trunks and branches that have been drilled. The injury caused to the cambial growth and outer xylem layers causes a permanently discolored scar in the xylem ring of that year's growth (Shigo 1979), so by counting the number of xylem growth rings radially from the scar, the number of years since the damage was inflicted can be determined (Fig. 3). I collected and examined specimens from 3 locations: several logs from a woodpile at Harding Lake; several sections from a single live 100+-yr-old tree at Fairbanks; and a section of a live, 60+-yr-old tree near Ruby (see Appendix for details of locations). Since each specimen showed numerous rings of scars, I made a series of slices of each section in order to determine the range of dates over which the specimen had been drilled by sapsuckers.

RESULTS

Records of live birds.—All recent observations of Yellow-bellied Sapsuckers have been in a restricted area of east-central Alaska, not far from the Alaska-Canada border (Fig. 1). The first was on 16 June 1976 just north of Northway Junction, where I watched an adult male inspecting

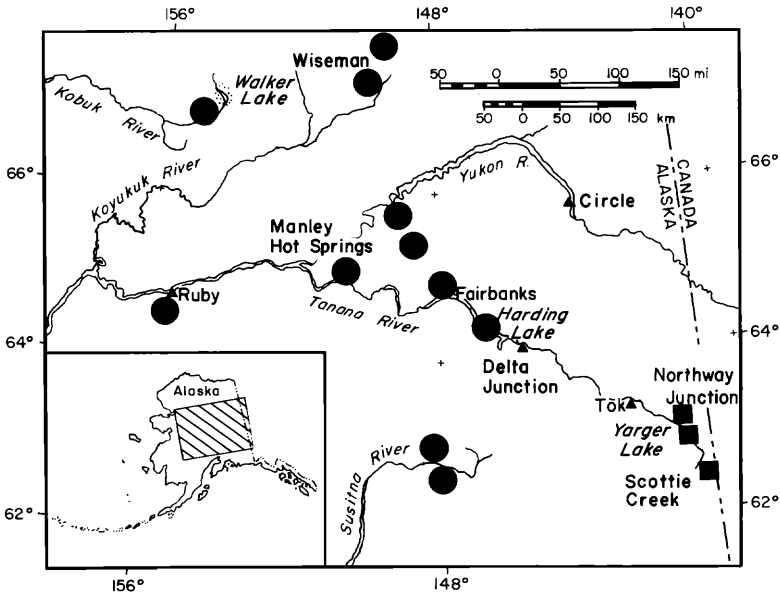


FIGURE 1. Distribution of Yellow-bellied Sapsucker sign in Central Alaska. Squares show records of birds between 1976 and 1984; circles represent known locations of trees with old sap well scars.

a powerpole and insulators in an area of mature mixed paper birch-white spruce (*Picea glauca*). Subsequently, the species was observed in this same area in 1977, 1983, and 1984. A pair successfully raised a brood there in 1983; the nest hole was 7 m up in an 11-m birch and contained young on 26 June and 11 July 1983 (P. D. Martin, D. D. Gibson, T. G. Tobish, and others; pers. comm. and photos).

On 20 June 1979 along Scottie Creek, I heard the distinctive tappings of a sapsucker and discovered a probable nesting pair. Among the numerous trees with bands of old sap wells along the creek was one with extensive current workings, and two disturbed birds, which I never saw, flew back and forth uttering "c-waan" calls.

In addition to these breeding or probable breeding records, a male was reported at Yarger Lake on 21–22 May 1977 (M. A. Spindler, pers. comm.) and again on 15 June 1982 (O. K. and H. H. Scott, in litt.). Farther west, an earlier sighting north of Harding Lake, in 1957 or 1958, was reported by B. N. Canady (F. G. Hering, pers. comm.).

Old sap well scars.—The extensive distribution of birch trees that bear rows of scars from healed sapsucker sap wells indicates that the areal distribution of this woodpecker is not as limited as the few sightings would indicate. Scarred trees are common at least as far northwest as 64°52'N, 147°49'W, west of Fairbanks, and as far southwest as about 62°47'N, 147°57'W, in the upper Susitna River Valley; and sets of work-



FIGURE 2. Typical scarring left by Yellow-bellied Sapsuckers on birch trees in Central Alaska.

ings have been observed as far west as Ruby (May 1982; Kessel, pers. obs.), as far northwest as 33 km southwest of Walker Lake (June 1982; L. Shain, in litt.), and as far north as the headwaters of the Middle Fork of the Koyukuk River (July 1985; T. A. Waite, in litt) (Fig. 1 and Appendix).

The temporal distribution of sapsuckers as determined from dating the scars on the cross-sections of specimens from damaged trees showed a much longer and continued occupancy in Alaska than anticipated. Slices from the sample sections of the tree harvested at Fairbanks in November 1982 each showed 2 to 6 yr of damage, which ranged from 1913 to 1973. In all, these few sections showed drillings in 34 different years within this 60-yr period. The oldest slice from the oldest section showed xylem damage in 1913, 1932, 1940, 1949, 1964, and 1968. Other slices of the same section showed damage not only duplicating some of these years, but in other intermediate years, also. In fact, the drillings in this section seemed clustered in three approximately 10-yr periods since

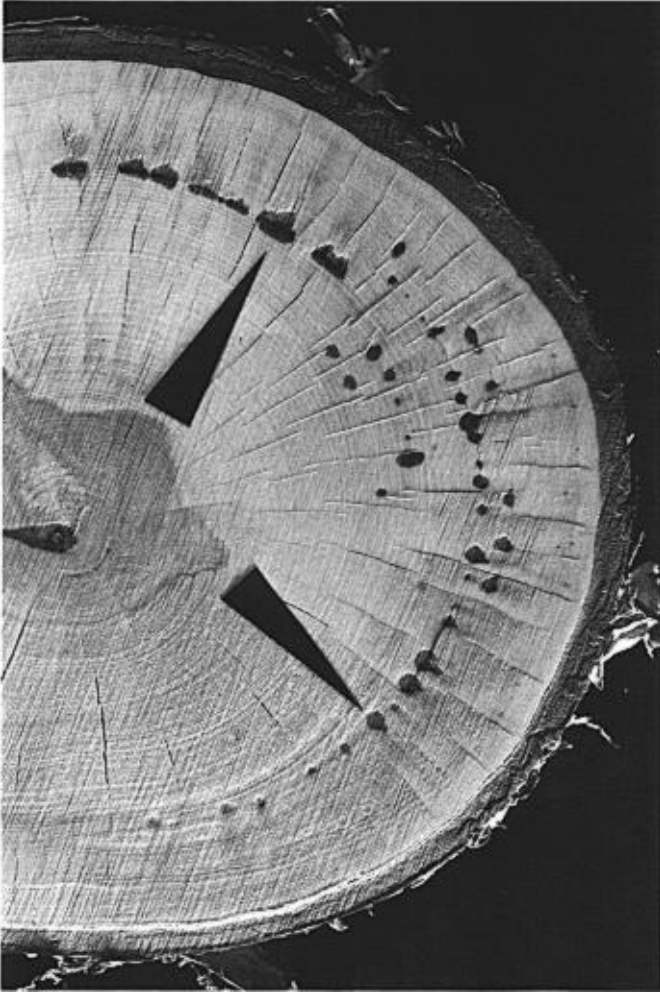


FIGURE 3. Cross-section of a birch trunk harvested near Fairbanks, Alaska, November 1982, showing 5 years of scarring by Yellow-bellied Sapsuckers. Years of damage can be determined by counting the xylem rings radially from the scars.

1931: 1932–1942, 1948–1958, and 1962–1968. Workings on the other sections from different parts of the same tree combined to show a more or less continuous presence of sapsuckers at this tree over the years since 1931. There were gaps of 1 or 2 yr, but these may reflect my low sampling level rather than the absence of birds.

The sample from the tree near Ruby showed sapsucker workings between 1944 and 1970, and the logs from the woodpile at Harding Lake, all harvested from a limited area but probably from more than one tree, showed workings between 1953 and 1970.

Habitat and food trees.—Based on both bird distribution and the distribution of sap well scars, Yellow-bellied Sapsuckers in central Alaska favor a habitat of mixed white spruce-paper birch forest. Sap wells have been found only on paper birches, however, most forming numerous rows of the type described by Tate (1973) as “primary sap bands,” sap wells that are not usually arranged in vertical columns (Fig. 3). In the North-eastern United States, sapsuckers use some conifers and other deciduous tree species during fall, winter, and spring, when sap in birches is either not flowing or is dilute, but they favor various species of birch trees for summer feeding (Kilham 1964, Tate 1973). Birch sap is already running in central Alaska by the time migrants arrive, estimated to be 6–10 May, so there seems no need for them to use less favored food sources. Some bast feeding apparently occurs in fall, since I have seen 2 sets of these types of feeding holes in small (<20 cm diameter) birches within about 1 km of each other west of Fairbanks that were apparently drilled in fall 1982.

DISCUSSION AND CONCLUSIONS

The Yellow-bellied Sapsuckers of Alaska are a northwestern extension of the boreal forest population of Canada, displaying a distribution pattern that parallels that found in many boreal forest organisms that reach central Alaska. However, the status of this sapsucker at the northwestern extremity of its range is unclear, since the evidence of areal and temporal occurrences as revealed by old sap well scars is only partially corroborated by actual sightings of the birds. Without doubt, the species has been more widely distributed in the recent past than it is today, but sap well scars nonetheless show that it has occurred as recently as the 1970s in areas where the bird itself has never been reported.

The permanence of the drilling record provides a long-term overview of the sapsucker's historical range, and the accumulative nature of that evidence would tend to over-emphasize its current abundance. On the other hand, in the vast region of central Alaska, which is lightly populated by observers, chance sightings of live birds could be minimal. It is a puzzle, however, how the more or less continuous presence of these sapsuckers, as shown by the sampled tree from Fairbanks, could have escaped notice, because at least some active bird observers have been present since the early 1950s and their numbers have increased steadily since 1965. Obviously, we still have much to learn about the status and behavior of the Yellow-bellied Sapsucker in central Alaska.

ACKNOWLEDGMENTS

I express appreciation to the field observers, including those mentioned above, who contributed background data for this report, and to E. R. Whitney, who voluntarily counted xylem rings on the various samples of birch.

APPENDIX

Gazetteer of place names used in text.

General location as given in text	Specific location, either Alaska Highway Milepost or Lat-Long
Harding Lake, north of	Milepost 1482
Koyukuk River, headwaters of Middle Fork	67°19'N, 150°10'W and 67°39'N, 149°41'W
Northway Jct, north of	Milepost 1266
Ruby	64°35'N, 155°30'W
Scottie Creek	Milepost 1223
Walker Lake, southwest of	66°49'N, 154°41'W
Yarger Lake	Milepost 1257

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