onset of incubation. A final possibility is that an original two-egg nest was abandoned by the loons, and another set of two eggs was laid in the same nest by the same female. The observed onset of incubation is neither early nor late in the season for loons in this area. It is possible, therefore, that the second set of eggs represents a renest attempt. If approximately 14 days elapsed between nest failure and renesting (Sutcliffe 1975), laying of the first clutch probably occurred sometime in late May.

These observations were made while conducting field work for the Loon Preservation Committee of New Hampshire. Appreciation is expressed to Scott Sutcliffe, who reviewed the paper and gave helpful suggestions.—DAVID H. NELSON, *Dept. Natural Resources, Cornell Univ., Ithaca, New York 14853.* (Present address: *Dept. Forestry and Wildlife Management, Univ. Massachusetts, Amherst, Massachusetts 01003.*) *Accepted 19 Apr. 1983.*

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Observations suggesting parental division of labor by American Redstarts.—Smith (Can. J. Zool. 56:187–191, 1978) and Nolan (Ornithol. Monogr. No. 26, 1978) have observed parental division of labor during the fledgling period in Song Sparrows (*Melospiza melodia*) and Prairie Warblers (*Dendroica discolor*), respectively. However, the generality of parental division of labor is unknown because of the virtual lack of information on the fledgling period in most species. This report describes observations on an American Redstart (*Setophaga ruticilla*) pair which suggest another example of parental division of labor during the fledgling period.

On 1 August 1981, at the south shore of Bridge Lake (51°29′N, 120°42′W; approx. 80 km N of Kamloops), British Columbia, an adult female redstart was observed feeding one fledged young. About 5 m from the female a male redstart, in first-year plumage, was feeding a second fledgling. A third fledgling was observed sitting quietly on a branch about 1 m from the male. All of the young birds were in complete juvenal plumage as described by Bent (U.S. Natl. Mus. Bull. No. 203, 1953), and their tails appeared to be similar in length to those of the adults. At 17:50 I followed the female for 50 min keeping her and the young she was feeding (YG1) under simultaneous observation. During this time, YG1 followed the female and was fed 15 times by her. The male did not approach or feed YG1, although on three occasions YG1 flew towards the male and begged unsuccessfully.

After observing the female, I followed the male for 20 min and saw it feeding the second fledgling (YG2) once and the third young bird (YG3) twice. While making these observations, the female and YG1 were often seen and their calls were audible. Thus, of the three young birds involved, two associated with one parent and the third with the second parent.

On 2 August, in the same general area, I located what I assume was the same family. The male was observed for 63 min during which it fed two fledglings. During this observation period, the female, who was perched about 8 m up in a tree, remained still; the third young was perched about 2 m below it. I did not observe any begging by this young bird. Once, however, one of the male's young moved to the same branch as the female and begged directly from the female. The female made no observable response. After the observation period ended, I followed the female for 10 min and saw it feeding the young bird perched below it.

During these observations the male's two young appeared to take turns being fed. For about 15 min one young actively solicited food while the other perched quietly in shrubbery near the lakeshore. The behavior of the young then reversed. This switching occurred several times during the observation period.

These observations, although anecdotal, suggest a number of interesting things. First,

division of labor by the sexes in feeding the fledglings occurred. Young fed by one parent were not fed by the other, although numerous opportunities existed, and on four occasions young solicited care from the "wrong" adult. I cannot show that stable family units (sensu Nolan 1978; Smith and Merkt, Can. J. Zool. 58:1869–1875, 1980) had been formed because the young birds were not color-marked. However, my four observations of unsuccessful solicitation of food by young from the wrong parent, and the identical number of young tended by parents over 2 days, could be construed as weak evidence for family units.

Finally, these observations suggest that male American Redstarts breeding for the first time can assume a large share of parental care during the fledgling period.

Parental division of labor during the fledgling stage has been documented for the Ovenbird (*Seiurus aurocapillus*) (Hann, Wilson Bull. 49:145–237, 1937), the Prairie Warbler (Nolan 1978), the Song Sparrow (Smith 1978), and the Eurasian Blackbird (*Turdus merula*) (Snow, A Study of Blackbirds, George Allen and Unwin, London, England, 1958). In these studies the breeding season was long enough to permit the birds to be double-brooded. Therefore, the division of labor may release the female from feeding all the fledged young in order to lay a second clutch. However, the redstarts in the Bridge Lake area are probably single-brooded. Evidence for this comes from the late migration of this species into the area (mid- to end of May, pers. obs.) and the closeness of the beginning of the fall migratory period at the time these observations took place. Using 19–20 days as the period of incubation and nestling stages combined (Sturm, Auk 62:189–206, 1945), and assuming the redstart's fledgling period is similar in duration to that of Prairie Warblers (approx. 30 days, Nolan [1978]), the fledglings observed were about 40 days old. Thus, they were likely the first and only successful brood.

Division of labor by birds with a very short breeding season may facilitate the production of a single brood during a period when prebasic molt and other physiological preparations must occur prior to migration.

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Violation of ideal nest placement: Cliff Swallows entombed by their own excrement.—Cliff Swallows (*Hirundo pyrrhonota*) construct globular mud nests with entrance tubes pointing downwards. Nests are constructed under overhanging cliff ledges or man-made structures, often touching one another. Nest placement by Cliff Swallows approaches the hexagonal, maximum density packing pattern (e.g., see Emlen, Auk 71:16–35, 1954, plate 5 for good photographs; Barlow, Anim. Behav. 22:876–878, 1974). The hexagonal pattern confers several advantages to the builders. Both the strength of the nest and the inside volume are maximized relative to the quantity of mud used in nest construction. Since the first nests to be built in a colony are generally placed in a horizontal row (Emlen 1954, pers. obs.), subsequent nests built below should be diagonally offset relative to those above. Violations of this last principle are infrequent, particularly on the regular surfaces afforded by man-made structures, but they do occur on occasion.

Observations were made in a 50-pair Cliff Swallow colony located beneath a concrete irrigation structure in north-central Washington during the months of June and July 1982. My attention was called to a pair of nests, one built directly beneath the other instead of offset to one side as usual. Ordinarily, Cliff Swallow nestlings defecate out the nest hole and