

Short of actual nesting observation, only the presence of a brood patch offers conclusive evidence of reproductive activity in crossbills. Gonadal size is not as indicative but is still a moderately good indicator. The single female collected possessed no brood patch and her ovary was relatively small (5 mm), indicating that she was not in a reproductive state when collected. The two males, however, were mature and had testes of  $5 \times 4$  and  $6 \times 5$  mm. These approximate the testicular sizes of known breeding White-winged Crossbills from Canada and Alaska (6–7.5 [6.7 mm]  $n = 4$ ). (These data were supplied by W. E. Godfrey, National Museum of Canada; and J. C. Barlow, Royal Ontario Museum).

In any event, this account reports the only specimens recorded for the species in Utah; the only other record being of three birds observed on a Christmas Bird Count on 21 December 1969 near Salt Lake City (Kashin, Audubon Field Notes, 24:416, 1970).—GARY L. WORTHEN, *Museum of Natural History, University of Kansas, Lawrence, Kansas 66044, 9 August 1972.*

**A short method for treating avian breeding data in regional accounts.**—The manner in which breeding evidence is presented in distributional surveys varies considerably. If little information is available or if space limitations do not preclude detailed treatment, all evidence may be given. In most cases, however, such data must be abbreviated. The classical method of abbreviation, the employment of a single symbol, usually an asterisk, to denote "breeding species" is inadequate for many types of surveys because a symbol cannot be defined to account for widely differing opinions as to what type of evidence constitutes proof of breeding.

The system proposed here allows the reader to make this decision according to his own concepts and at the same time satisfies the requirement of brevity. It is based on a scale that allows each of the major types of breeding evidence to be reported in a standardized *word phrase*. The sequence employed, a minimal modification of that occurring in nature, proceeds from the strongest to the weakest evidence.

In applying the system in faunal works, it is necessary only to determine the highest ranking datum known for a species and present a caption followed by the word phrase: "Breeding evidence: nest with young." When available data do not fully meet the requirements of the most similar entry on the scale, the next highest category for which there is evidence may be added. The breeding evidence section is included in a species account only if the data satisfy at least two of the last three points on the scale (range, habitat, and dates). The scale employed for breeding evidence is presented below, with the standardized word phrases listed first.

*Prejuvenal.*—The term *prejuvenal*, coined herein, denotes an individual that has left the nest but has not yet attained full growth of its first set of adult-sized remiges and rectrices. The possession of fully-grown flight feathers as the terminal point for this state is preferable to the cessation of the juvenal molt because of the difficulty of determining the presence or absence of molting body feathers in the field or in museum specimens, and because the completion of flight feather growth renders the young bird fully capable of traveling long distances from the nest site. This term has been coined because the only other word available, fledgling, has several nebulous definitions, is usually applied only to nidicolous species, and is restricted by some authors to the stage after completion of juvenal feather growth. When evaluating distributional breeding data, especially for very small areas, one must allow for highly mobile juvenals, such as precocious flyers (e.g., Galliformes), walkers (Charadriiformes), and swimmers (Anseriformes). Some species (e.g., certain hummingbirds and swifts) probably lack a

prejuvencal state, remaining in the nest (nestlings) until their flight feathers are fully grown. When using this category, it is advisable to state whether the record is based on a specimen or field observation.

*Nest with young.*—An examined specimen of a nestling is considered sufficient evidence for this category.

*Nest with egg(s).*

*Active nest completed, contents unknown.*—This and the following three categories imply nests known to be used for breeding; if doubt exists, details may be presented and the next highest category added.

*Active nest completed but empty.*

*Nest under construction.*

*Active nest, condition unknown.*—This category is useful for inaccessible nests, especially those in holes.

*Adult(s) carrying nest material.*—Repeated observations may be necessary to determine beyond reasonable doubt that carried material is for nest construction.

*Hard-shelled egg in oviduct.*

*Soft-shelled egg in oviduct.*

*Egg without shell in oviduct.*

*Ruptured follicle(s).*

*Enlarged follicle (. . . mm).*—Usually, measurements are given only for the largest follicle. Care must be exercised to avoid treating as breeders those species known to attain enlarged follicles or testes, or engage in copulation or courtship, outside their normal breeding grounds. See enlarged testes category.

*Enlarged oviduct.*

*Copulation observed.*

*Courtship display observed.*

*Territoriality observed.*

*Enlarged cloacal protuberance.*

*Enlarged testes (. . . mm).*—If measurements of the testes or enlarged follicle are unknown, or if either follicles or testes are only “slightly” or “moderately” enlarged, evidence is considered insufficient, and the next highest known category should also be given. Two sets of dimensions are given if the testes are different in size and one set if the testes are equal or the size of only one is known; in the last case, notation to that effect should be made.

*Range.*—This and the following two categories are considered to be on an equal level at the bottom of the scale and are always presented together. In each of the three, usage is determined by the amount of evidence that suggests breeding. If all information indicates breeding, the unmodified name of that category is given; if some, either “probably” or “possibly” is added; if none, the modifier “not” is used. For example, the breeding evidence section might read “range, habitat, and possibly dates.” A phrase such as “range, probably habitat, and probably dates” could not be used because only one of the categories is unqualified, and the breeding evidence section thus would be omitted.

Considered in evaluating range as breeding evidence are the distance from the region under investigation to the nearest area of known breeding; whether the species breeds on only one or on two or more sides of the region; whether continuity in habitat exists between the region and the known breeding range; and the degree of localness exhibited by the species. In the last case, a species known to be local in its breeding distribution is considered a less likely breeding prospect than a wide-ranging species.

*Habitat.*—Habitat is used as breeding evidence if the species has been recorded in proper breeding habitat in the region.

*Dates.*—A species is considered a more likely breeding prospect if it is sedentary rather than migratory or wandering in its habits, if breeding season dates have been recorded, or if the distribution of dates indicates that the species is a permanent resident. For sedentary species, a single occurrence within the region, whether or not it is during the breeding season, is regarded as excellent evidence, in most cases conclusive, for inclusion of the date category. For a non-sedentary species, lack of a breeding season date negates the date category.

This system is easily modified. Only major categories have been listed here, but additional word phrases may be added, in their proper sequence, if an author so desires. The author may decide what evidence should be considered proof of breeding by so stating in his introduction; but deleting what he considers inconclusive categories would defeat the major function of the system. The scheme is useful even in monographic treatments, since information such as dates (especially egg dates), localities, habitats, elevations, or references to publications or specimen labels may be added conveniently to the standardized word phrases. In the case of unusual breeding records, all details may be given, at least for those categories high on the scale.

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### NEW LIFE MEMBER



Laurence C. Binford, Assistant Curator of Birds and Mammals at the California Academy of Science, San Francisco is a new Life Member of the Wilson Ornithological Society. Dr. Binford earned his bachelor's degree from the University of Michigan and his doctorate at Louisiana State University. He has published numerous papers on a variety of ornithological subjects and has carried out a major study on the birds of Oaxaca, Mexico. Some years ago he had the unusual experience for present-day ornithologists of adding a new species to the Check-list area list, the Five-striped Sparrow. Dr. Binford is an Elective Member of the A.O.U., a member of the Cooper Society, Louisiana Ornithological Society, Michigan Audubon Society, and is Vice President of the Board of Directors of the Point Reyes Bird Observatory. Besides his ornithological work he lists his hobbies as birding, golf, and bowling.