TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE WYOMING SOIL CONSERVATION SERVICE

Biology No. 231 January 1986

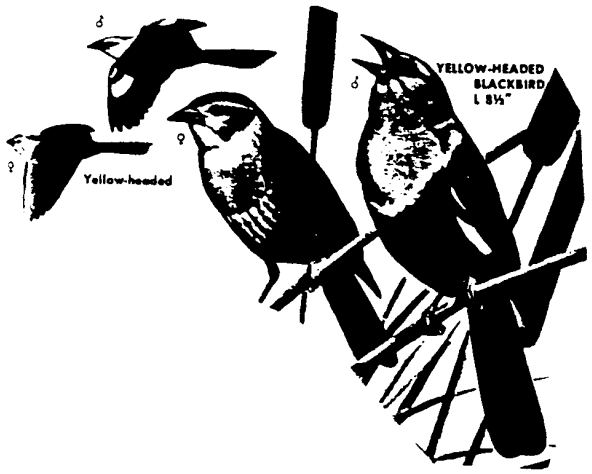
Subject: YELLOW-HEADED BLACKBIRD*

General

The yellow-headed blackbird (Xanthocephalus xanthocephalus) is a common breeding bird in marshes throughout the arid and semiarid portions of western North America. Preferred habitats are inland lakes, ranging from fresh to alkaline, with emergent vegetation and permanent water.

Food Requirements

The breeding season diet and foraging techniques of the yellow-headed blackbird tend to vary from the eastern to western portion of its range. Yellow-headed blackbirds in western study areas foraged primarily on emerging aquatic insects in marsh habitats during the breeding season. Insects from the order Odonata (dragonflies and damselflies) were the dominant food items in these studies; however, odonates were not required for nesting success. Breeding season diets of yellow-headed blackbirds in an Iowa marsh consisted of a wide variety of arthropods, dominated by dipterans, odonates, and lepidopterans. The blackbirds foraged in upland areas for extended periods of time when insect abundance on the marsh was low.



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*Information taken from Ecoregion M3113 Handbook and Habitat Suitability Index Models, Wildlife Species Narratives (literature searches), U.S. Fish and Wildlife Service, various dates between 1978-1984.

Variations in diet and foraging techniques may relate to differences in the relative productivity of wetlands and uplands of the regional habitats occupied by the yellow-headed blackbird. Lakes and marshes in arid and semiarid habitats tend to concentrate more nutrients and have higher aquatic insect productivity. Conversely, lakes and marshes in more humid areas tend to dilute and flush out regularly and, therefore, do not concentrate as many nutrients. Areas with relatively dry and unproductive uplands may force blackbirds to be more dependent on the marsh for food, whereas uplands in more humid habitats are lush and diverse and provide a large and varied food source for foraging blackbirds. However, yellow-headed blackbirds must have wetlands to survive, and their use of upland foods only occurs after establishment of a nest site in a marsh containing suitable food resources for brood rearing.

The amount of aquatic insects potentially available to yellow-headed blackbirds is a function of available marsh nutrients, permanence of water, the amount and distribution of submergent and emergent vegetation, and the presence of fish In the western portion of the yellow-headed blackbird's range, lakes with high specific conductivities also exhibit high aquatic insect production. Yellow-headed blackbirds in a British Columbia study did not breed in lakes with specific conductivities less than 1,100 micromhos/cm, and breeding densities increased as conductivity approached 3,500 micromhos/cm. At specific conductivities greater than 4,000 micromhos/cm, emergent vegetation did not grow, and birds were limited by a lack of nesting and foraging sites. However, water samples from Rush Lake, Iowa, ranged from 390 to 760 micromhos/cm at 25°C, and this lake supported breeding populations of yellowheads. Furthermore, wetlands in the upper Midwest with measured specific conductivities exceeding 4,000 micromhos/cm at 25°C regularly supported emergent vegetation. It appears that "...specific conductance is not a precise measure of productivity when used alone to compare widely separated areas with large climatic and geological differences."

The majority of common odonates in Washington require permanent water in order to overwinter. Lakes that dry up during late summer have much lower rates of aquatic insect emergence than lakes with permanent water, and the emergence begins too late to be of much value to breeding yellow-headed blackbirds.

The negative influence of carp (Cyprinus carpio) is primarily due to habitat destruction rather than actual predation on aquatic insects. Lakes with high carp populations are frequently characterized by high turbidity levels and an absence of submerged vegetation, while those without carp more often have clear water and abundant submerged vegetation, which provides perches and shelter for insects.

Distribution and accessibility of emerging aquatic insects at a particular site is strongly related to the arrangement of emergent vegetation. Favored foraging locations for yellow-headed blackbirds are near water, around the edge and base of emergent vegetation, and on lakeshores with no emergent vegetation. Interior portions of large patches of emergent vegetation are poor sources of food for yellow-

headed blackbirds, and the broader the expanse of emergent vegetation, the fewer insects will be produced per unit area. Less dense or scattered areas of emergent vegetation allow greater penetration of sunlight, which probably increases aquatic insect production. Scattered emergent vegetation also improves the foraging success of yellow-headed blackbirds by concentrating emerging aquatic insects as the insects move toward the shore and onto the vegetation.

Water Requirements

Dietary water requirements were not mentioned in the literature. Habitat requirements related to water are discussed in other sections of this narrative.

Cover Requirements

Cover needs of the yellow-headed blackbird are assumed to be the same as reproductive needs and are discussed in the following section.

Reproductive Requirements

Yellow-headed blackbirds nest only over standing water, primarily in emergent vegetation. Habitats with stable, permanent water are preferred. The average water depth under 59 nest sites in western Canada was 30.8 cm (12.1 inches), while averages from several marshes in Iowa ranged from 25.4 to 56.9 cm (10 to 22.4 inches). Any water depth greater than 15.2 cm (6 inches) is probably adequate for nesting yellow-headed blackbirds.

Yellow-headed blackbirds require robust vegetation to support the nest structure. Most nests are constructed in cattails (Typha spp.), bulrush (Scirpus spp.), or tall reeds (Phragmites communis). Other vegetation which may be utilized for nesting includes rushes (Juncus spp.), tamarix (Tamarix gallica), and willows (Salix spp.).

Special Habitat Requirements

Nesting territories contain an abundance of edge between emergent vegetation and open water. One researcher reported greater nesting success in territories containing 55 to 79 percent emergent cover than in those areas containing 71 to 94 percent emergent cover. Densities of nesting yellow-headed blackbirds in a 160 ha (400 acre) northern Iowa lake and marsh were highest when the ratio of emergent vegetation to open water areas [2.7 m (9 ft) wide] was approximately 50/50. Densities decreased as either open water or emergent cover approached 100 percent coverage of the area.

The highest breeding densities of yellow-headed blackbirds have been reported on small marshes. One researcher observed approximately 30 nesting pairs on a 0.4 ha (1.0 acre) marsh, and another found 12 territories on a 0.15 ha (0.38 acre) marsh.

Highest breeding densities within marshes themselves generally occur in areas where the majority of food items are taken from open lands away from the marsh, sometimes at distances exceeding 1 km (0.6 mi). Yellow-headed blackbirds tend to select marshes in open country and avoid placing nests near large trees.

Territories on study sites in California and Washington varied in size from 36 to 4,076 m^2 (43 to 7,875 yd^2).

Special Considerations

Yellow-headed blackbirds frequently feed on crops during fall and winter and may contribute to crop damage in some areas. Habitat needs of the yellow-headed blackbird reflect marsh conditions that are attractive to many other birds, making it a good "indicator" species.