



**STATUS: HIGH
CONSERVATION
PRIORITY IN IOWA**



American Bittern

Botaurus lentiginosus

Introduction

The American Bittern is a large, stout, solitary, cryptically colored heron that breeds in freshwater wetlands from the mid-United States to northern Canada. It prefers wetlands dominated by tall, emergent vegetation, and within these habitats frequents vegetation fringes and shorelines. It is seldom seen as it slips through the reeds, but its odd pumping or booming song, often heard at dusk or dawn, carries for long distances across the marsh. Once heard, these distinct calls are seldom forgotten.

American Bitterns rely on stealth more than pursuit to forage, waiting motionless for long periods to capture passing prey—mainly insects, amphibians, crayfish, and small fish and mammals. It is crepuscular and most active during earlier morning and late evening hours.

Because of this species' secretive nature and inaccessible habitats, remarkably little is known about basic aspects of its biology, including sources of mortality, habitat use, mating systems, and population structure. Basic research on its natural history would help to conserve the species, which is undergoing substantial declines over much of the U.S. owing largely to loss and degradation of wetland habitats.

Habitat Preferences

The preferred habitats of American Bitterns are a rather wide range of chiefly freshwater wetlands and reedy lakes, with tall, emergent vegetation. It is also found at times in sparsely vegetated wetlands.

This species sometimes nests in upland cover that surrounds a wetland basin, provided that cover is not modified by agriculture. But it mainly breeds in large, shallow wetlands with abundant cattails and other tall marsh vegetation.

In comparison to the sympatric Least Bittern, also a species of high conservation priority in Iowa, the American Bittern uses a wider variety of wetland cover-types, with less dense vegetation, and shallower water depths.

Feeding Habits

The diet of American Bitterns consists mostly of small fish and various other aquatic life, including insects, frogs, salamanders, small mammals, garter snakes, crayfish, tadpoles, and assorted other prey. This species has also been observed catching dragon flies. At drier sites they may eat rodents, especially voles.

Vegetation fringes and shorelines are favorite foraging areas; and this American Bittern seems to avoid even-aged stands of older, dense, or dry vegetation. These birds forage primarily by standing in-place at the water's edge and sometimes walking slowly and uses a sudden thrust of the bill to ambush prey that ventures too close. Thus, this solitary feeder relies on stealth more than pursuit to capture prey. Its coloration, particularly ventral stripes, provides camouflage in dense, vertical marsh vegetation, complements its inactive feeding style, and permits solitary foraging.

Prey is killed by biting or shaking, and swallowed headfirst. Foraging birds may remove dangerous dorsal and pectoral

spines of fish prior to swallowing. Foraging may occur at any time of day or night, but these birds are most actively near dusk and dawn

Breeding Biology

The male American Bittern defends a nesting territory by advertising his presence with its unique "booming" or "pumping" calls. Pair formation takes place upon arrival of females from March to early May. Courtship displays have not been well described, but one male may mate with two or three females.

Nests are most often located in dense cattails and other tall emergent marsh vegetation above shallow water, but have also been found on dry ground in dense grasses. The nest, apparently built by the female alone, is a platform of small pieces of marsh vegetation, lined with fine grasses.

Eggs, usually 3-5, but can range from 2-7, are laid from late April to late June, and the first broods of the season arrive in May to early July. Incubation starts before full clutch is laid, perhaps beginning with first egg. The incubation period is 24 to 28 days. Incubation is by female only, but no information is available on length of incubation.

Brooding and feeding young is apparently by female only. Chicks are given regurgitated, partly digested prey. Young may leave the nest after 1-2 weeks, but remain nearby and are fed up to the age of 4-weeks. First flight may occur around age 7-8 weeks.

Concerns and Limiting Factors

Researchers have indicated that American Bittern were fairly common in Iowa through the 1940s. But birdwatchers reported population declines in mid-continent by the late 1970s, and the entire continent by 1986. Other data from the Midwest show an annual decline of 4 % per year from 1966 to 1987, which also indicated that the decline

in Iowa and the Midwest is more severe than elsewhere.

This trend of population decline in our strongly agricultural state no doubt continues. American Bittern is a rare breeder in our state, and is now considered a high conservation priority in Iowa.

The causes of population declines have been cited as habitat loss, human disturbance, and pesticides and other contaminants. Loss of wetland habitat is clearly the major cause of decline, starting as early as the 1890s in some states. Habitat degradation is also a factor. Eutrophication, siltation, chemical contamination, and human disturbance seriously reduce habitat quality, primarily by damaging prey supplies, even at large, protected wetlands. Furthermore, changes in wetland isolation and wetlands with more stabilized water regimes may seriously erode habitat quality for this bittern.

Little is known about effects of contaminants on this species. Agricultural chemicals may have significant, indirect effects on the species by entering wetlands via runoff from upland areas and reducing prey populations. Many prey of bitterns, including aquatic insects, crayfish, and amphibians, are vulnerable to agricultural pesticides. The invasion of wetlands by exotic plant species, e.g., purple loosestrife, may substantially alter waterbird habitats, but how this effects bitterns has not been assessed.

Habitat Management Recommendations

Preservation of freshwater wetland habitats, particularly larger wetlands, and shallow wetlands with dense growth of robust emergent vegetation, is the most urgent management need. Wetlands used for breeding by American Bitterns also need to be protected from chemical contamination, siltation, eutrophication, and other forms of

pollution that harm the birds or their food supplies.

The concentration of both nesting and overwintering populations at protected and managed wetlands, e.g., state and national wildlife refuges, emphasizes the need to develop and implement habitat management procedures that benefit bitterns.

For more specific information about management of wetlands, see that portion of Part 3 of this project.