

WHITE-FACED IBIS (*Plegadis chihi*)

Associated Species: Other bird species that may respond similarly to habitat components used by the White-faced Ibis are: Snowy Egret, Forster's Tern, Franklin's Gull, Redhead, Black-crowned Night Heron, Great Blue Heron, Western Grebe, Clark's Grebe, Eared Grebe, American Bittern and Long-billed Curlew, Red-winged Blackbird, Yellow-headed Blackbird.

Distribution (Ryder and Manry 1994): The White-faced Ibis has a discontinuous distribution. It is locally common, nesting in several marshes in the western U.S., especially in the Great Basin, and wintering in large flocks in Mexico, western Louisiana, and eastern Texas. The largest breeding colonies are usually located in Utah, Nevada, Oregon, and coastal Texas and Louisiana. Around the Great Basin, Ibis are located at Great Salt Lake, Ruby and Utah Lakes, in the Carson Lake-Stillwater area, at Honey Lake, and at Malheur National Wildlife Refuge (Ryser 1985).

Average breeding White-faced Ibis population for the Refuge (1956-2002, June) is 5,286 (Historic Refuge files). In a five-year survey of Great Salt Lake, mean population for July-August was 25,576, with a high count of 54,908 in 2000 (Paul and Manning 2002).

Ecology (Ryder and Manry 1994): White-faced Ibis frequent shallowly flooded pond margins, reservoirs, and marshes. In Nevada, they feed in recently flooded agricultural fields where vegetation is 2 to 35 inches high. The long legs, neck and decurved bill facilitate foraging, as these birds wade in shallow water or traverse moist soil. Prey on the surface of water or soil are located visually, while prey below the soil surface are captured by tactile probing. Two aquatic feeding methods have been identified for the White-faced Ibis: (1) a "ranging" method in which ibis walks back and forth and probes water like a "pecking chicken", and (2) stationary method in which ibis stands in one place and swings bill side-to-side. One author believed a ranging method is used to capture crayfish (Decapoda), beetles (Coleoptera), or other adult insects, whereas a stationary method is used to catch midge (Diptera) larvae. Aquatic and moist-soil invertebrates, especially earthworms and larval insects (mainly Orthoptera, Odonata, Hemiptera, Coleoptera, and Diptera) are major food items. They also take leeches and snails.

In northern Utah, pair formation and nest-site selection occur mostly mid-April to mid-May, shortly after ibis arrive from wintering areas. Eggs are laid from the last week of April through the second week of June. Mean clutch completion dates between 14 and 20 May (Kotter 1970, Kaneko 1972, Capen 1977, Alford 1978, Steele 1980 in Ryder and Manry 1994). Ibis are colony nesters and some colony sites are used repeatedly over several years. This species usually nests in emergent vegetation or low trees and shrubs over shallow water; sometimes on the ground on small islands. In a Utah colony, nests ranged between 8 and 39 inches above water 24 inches deep. Average clutch size on the Refuge is 4 eggs (K. Lindsey pers. comm. 2003). Incubation on average is 20 days for the terminal egg in the clutch and up to 26 days for the first-laid egg. Both sexes are thought to incubate. Young are altricial, wet upon emergence but dry within 2-3 hours. By day nine, young can climb out of nest and wander for short distances. By week four, the nestling is well covered with juvenile feathers. Young are fed directly by adults by crouching over nest and lowering partly-open bill into nest cup. Chicks insert their heads into adults mouth to feed on regurgitated food. Young are essentially independent at age eight weeks.

Habitat Requirements: This species inhabits primarily freshwater wetlands, especially cattail, *Typha* spp., and bulrush, *Scirpus* spp., marshes, although it feeds in flooded hay meadows, agricultural fields, and estuarine wetlands. In the Great Basin, the largest colonies are in stands of hardstem bulrush, *Scirpus acutus*, Olney's bulrush, *S. Olenyi*, and alkali bulrush, *S. paludosus*. Ibis frequently feed in shallowly flooded wetlands of short, emergent plants. Dominant plants are sedges, *Carex* spp., and spikerushes, *Elocharis* spp. as well as salt-tolerant glassworts, *Salicornia* spp., saltgrass, *Distichlis spicata*, and greasewood, *Sarcobatus vermiculatus*. Nearby irrigated crops, particularly alfalfa, barley, and native hay meadows, are important feeding sites in Nevada, Colorado, Utah, Idaho, and Oregon.

Seasonal Use/Refuge Habitats: White-faced Ibis may be present from April through September and use wet mudflats, wet meadows, and shallow emergent marshes for feeding and staging (Table 5 and 6). White-faced Ibis use mid-depth emergent (8-12 inches) and deep emergent marshes (12-24 inches) from May through July for nesting, mainly in hardstem bulrush dominated aquatic plant communities. In 2002, White-faced Ibis colonized hardstem bulrush stands in impounded units 1 and 5B (K. Lindsey pers. comm. 2003).

Habitat and/or Population Objectives: North American population estimated at greater than 100,000 breeding pairs. Great Basin population estimate at 25,908. Draft objective is to maintain 10,000 breeding pairs in Utah (Ivey and Herziger 2003, *in prep.*)

Population Objectives: Maintain breeding colonies on the Refuge at population level of 6,781 or roughly 3,300 breeding pair.

Habitat Objectives: 1) Provide 8,600 acres of shallow emergent marsh and 6,600 acres of mid-depth emergent marsh for suitable nesting habitat (May-June). As White-faced Ibis prefer hardstem bulrush stands for nesting on the Refuge, this objective may be refined upon further field investigations to state the optimal acreage of bulrush stands. The size of bulrush patches and likely stem density apparently effects suitability as colony site (probably affords cover from predators) on the Refuge.

2) Provide 876 acres of wet meadow and 2,625 acres of salt meadow habitat for foraging sites April-September.

3) Maintain 8,600 acres of shallow emergent marsh (2-8 inches) and 8,700 acres of shallow submergent marsh (4-18 inches) throughout period of April to September for foraging and staging White-faced Ibis at a mean population level of 15,500 (July-August).

Habitat Management Strategy: See Section V. Habitat Management Strategies: Wetlands, Wet Meadow, and Salt Meadow.

Refuge Specific Research and Monitoring Needs:

1. Determine microhabitat nesting characteristics of White-faced Ibis on Bear River Refuge: nesting material, size of bulrush patch, stem density, distance from dike/water interface, water depth range.
2. Determine life history characteristics of White-faced Ibis on the Refuge: the role of gender in nest site selection and construction and incubation; average clutch size; mortality rates and parameters (predation rates).
3. Develop non-intrusive protocols to monitor breeding White-faced Ibis on Refuge without causing nest abandonment and other breeding locales in Utah.
4. Determine location, range, and habitat characteristics of preferred foraging locations on the Refuge.
5. Determine contaminant loading of breeding White-faced Ibis on the Refuge.