

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM****Animal Abstract****Element Code:** ABNJB01010**Data Sensitivity:** No**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE****NAME:** *Dendrocygna bicolor* (Vieillot)**COMMON NAME:** Fulvous Whistling-duck, Fulvous Tree Duck**SYNONYMS:** *Anas bicolor* Vieillot**FAMILY:** Anatidae. (Sub Family, Anserinea Tribe, Dendrocygninae)**AUTHOR, PLACE OF PUBLICATION:** *Anas bicolor* Vieillot, Noau. Dict. Hist. Nat., nouv. Ed., vol. 5, Dec. 1816, p. 136. *Dendrocygna bicolor helva* Wetmore and Peters, Proc. Biol. Soc. Washington, 35, 20 Mar 1922, P. 42. (North American subspecies).**TYPE LOCALITY:** *Dendrocygna bicolor* - Paraguay. *D. b. helva* – Unlucky Lake, San Diego County, California.**TYPE SPECIMEN:** *D. b. helva* – USNM 135588 (adult male). E.A. Mearns 10730, 30 Apr 1894.**TAXONOMIC UNIQUENESS:** There are eight species in the genus *Dendrocygna* with three extant in the United States, *D. arborea*, *D. bicolor* and *D. autumnalis*, the latter two of which have been recorded as occurring in Arizona. *D. b. helva* is the subspecies that occurs in North America, however, the full species is followed here.**DESCRIPTION:** Both sexes are identical with a rich tawny color overall. Head yellowish brown, darker on crown where it is more reddish; chin and throat, yellowish white; hindneck with black stripe from crown to foreback; neck with collar of white streaked with black, incomplete behind; eye, dark reddish brown to brown; bill, bluish black; nail black, markedly hooked. Back and scapulars, brownish black, the feathers broadly tipped with reddish brown and buffy; rump, black. Chest and breast, buffy brown; belly, paler; sides, reddish buff, longer side feathers with broad, creamy stripe bordered below with dusky; feet deep bluish grey, clumsy, heavy and long; claws long, dark. Tail brownish black; upper and under coverts, creamy. Wings, lesser coverts chocolate brown; rest of wing, both upper surface and lining, and the axillars, deep blackish brown (Kortright 1967). Immature birds have similar but duller plumage than adults. A medium-sized duck. Total length, mass: male 44-51 cm (17.3-20.0 in), 545-958 g; female 42-49 cm (16.5-19.2 in), 595-964 g (Hohman and Lee 2001). Wingspan averages 8.25-8.75 in (21-22.2 cm).

AIDS TO IDENTIFICATION: Whitish rump band, white underwing side markings and long trailing legs (giving a characteristically long-tailed appearance) are conspicuous in flight. Black-bellied Whistling Duck (*D. autumnalis*) has uniformly brown crown, nape, lower neck, breast and back; sides of face and throat gray-buff; bright red bill; long, bright pink legs; belly black, hence the species name (Boyer and Gooders 1990).

ILLUSTRATIONS: Color drawing (Boyer and Gooders, 1990:48-49)
Color drawing (Birds of North America, 1999:75)
Color drawing (Peterson, 1990:45)
Color photo (Farrand, Jr., 1988:94)

TOTAL RANGE: *Dendrocygna bicolor* is one of the most widely distributed species of waterfowl in the world, occurring mostly in tropical and subtropical regions but also in temperate areas of the Americas, Africa, and Asia (Hohman and Lee 2001). This includes: sub-Saharan Africa, Madagascar, Sri Lanka, India, Burma, North and South America, Mexico. Resident in California, New Mexico, Texas, and southern Louisiana; nests from central California and Pacific slope of southern California, casually in central Nevada (Washoe Lake), southeast Texas, southwest Louisiana, south into south-central Mexico (Terres 1980).

RANGE WITHIN ARIZONA: **Historic:** Formerly this duck occurred irregularly within the Sonoran Desert, especially along the Colorado River where it probably nested. Herbert Brown (1906) noted adults and immatures near Yuma at the turn of the century and collected a pair of adults and young of the year at the mouth of the Gila River on October 12, 1901. **Current:** Now decidedly rare, this species has become sporadic in occurrence eastward to Phoenix and Picacho Lake, most observations still being along the Colorado River south of Cibola (Brown 1985).

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Gregarious, highly social bird that establishes long-term pair bonds with their mates. It rarely perches in trees and never nests in them (Robbins et al 1983). They are migratory in northern portions of their range, but elsewhere they exhibit only local movements (Hohman and Lee 2001). Their flight is a slow wing-beat, making them appear lumbering. Flocks, typically at low altitude, lack organization evident in other waterfowl groups. Their well-developed leaping ability enables birds to flush from tall (1-1.5 m), dense vegetation. Potential predators of nesting adults according to Hohman and Lee (2001), include fox (*Vulpes* sp.), bobcat (*Felis rufus*), northern raccoon (*Procyon lotor*), Northern Harrier (*Circus cyaneus*), and Great Horned Owl (*Bubo virginianus*).

Vocalization: Adults noisy night and day. Characteristic call is a high-pitched, 2-syllabled whistle (accent on second), *kit-tee* or *pee-chee*; often repeated and sometimes preceded by series of short, high-pitched squeals. Uttered in flight and from the ground. Suspected functions include rallying, greeting, and alarm. Also given while feeding and in preparation for roosting. The Recognition call, variable in pitch, frequency, and volume, is a soft, 4-syllabled chatter, *cup-cup-cup-cup*. A single harsh *kee* note is rapidly repeated >4 times by individuals engaged in hostile behaviors. (Hohman and Lee 2001).

REPRODUCTION: Breeding season from April - September; breeders begin arriving in California in mid-March. Nests are constructed in dense floating or flooded emergent (herbaceous) vegetation. Maintenance required throughout incubation because nests, situated in flooded herbaceous vegetation, subject to settling and fluctuating water levels. A simple bowl is constructed of living or nonliving materials gathered by adults from immediate vicinity of nest. (Hohman and Lee 2001). Female trims surrounding reed, sedge within 4 to 5 feet of nest. In some areas the birds nest in tree-holes, on the ground, or in disused nests of other species such as Rudy Duck (*tadorna ferruginea*) and Redhead (*Aythya americana*) (Boter and Gooders 1990). Nests heavily parasitized by other Fulvous Whistling-Ducks, and at times by Redheads, Ruddy Ducks, and Northern Pintails (*Anas acuta*). Likewise, they also parasitize nests of Redheads and Ruddy Ducks. Clutch of 10-20 (usually 12-14) eggs, cream to buff white. Incubation about 24-26 days (sometimes longer) by both sexes, beginning after last egg is laid. Pipping generally evident 24 d after onset of incubation. Young emerge synchronously 24-48 hours after pipping starts. Hatchlings are precocial and nidifugous, existing nest on day after hatch, where they are tended by both parents. (Hohman and Lee 2001). They achieve first flight at 55-63 days. Boyer and Gooders (1990) state that clutch size is 6-16, egg color white, incubation 24-26 days and fledging in 63 days.

FOOD HABITS: Most exclusively a granivore, but also herbivore, and insectivore (particularly beetles and aquatic earthworms) at times. Fulvous Whistling-ducks feed exclusively in water while wading or swimming within flooded emergent vegetation, along open-water edges of emergent vegetation, and in open-water areas vegetated with flooded rice stubble, moist soil vegetation, or floating or submerged aquatic plants, at depths generally <0.5 m (Meanley and Meanley 1959 in Hohman and Lee 2001). Although they are noted for their nocturnal feeding habits, they normally feed most intensively in early morning and late afternoon (Hohman and Lee 2001). They are known to be attracted to rice and cornfields where they forage for waste grain. Both the Fulvous and Wandering whistling ducks (*D. arcuata*) feed on aquatic vegetation obtained by swimming or diving underwater (Bellrose 1976). Various studies in the United States have indicated that grass seeds of such types as wild millet (*Echinochloa*) and wild timothy (*Phleum*) are important foods, as are the seeds of broad leaved herbs such as smartweeds (*Polygonum*) and sweet clover (*Melilotus*) (Johnsgard 1978).

HABITAT: Breeding habitat in the U.S. includes freshwater wetlands, especially shallow (depth <0.5 m) impoundments managed for rice production and temporally flooded grasslands

and pasture (McCartney 1963 in Hohman and Lee 2001). Upland nesting by birds occurs in pastures, haylands, and small grain fields adjacent to ricefields, but individuals more commonly nest in flooded ricefields (Hohman and Lee 2001). Also, to a lesser extent, they occur in shallow (depth <0.5 m), freshwater marshes with dense stands of flooded or floating emergents (e.g., *Panicum hemitomon*, *Typha* spp., *Phragmites australis*, *Scirpus* spp.) and open-water zones vegetated with floating aquatic plants (e.g., *Brasenia schreberi*, *Nymphaea odorata*, *Nuphar* spp.; Meanley and Meanley 1959) (Hohman and Lee 2001).

ELEVATION: Recent AZ observation: 2,150 ft (656 m).

PLANT COMMUNITY:

POPULATION TRENDS: The status of the Fulvous Whistling-duck in the United States is something of an enigma. For unknown reasons, its population appears to wax and wane in abundance (Bellrose 1976). Hohman and Lee (2001) report “population fluctuations attributed to irregular movements by species, pesticide contamination, habitat loss and degradation, disturbances associated with agricultural practices, changing agricultural practices, and hunting.” It was first reported in numbers in the central valley of California in the 1890s and apparently increased until the 1920s (with rice culture?) to the point that this duck was locally numerous. This was followed by a period of declining populations and range contractions (Brown 1985). By the late 1970s, however, breeding was restricted to the Imperial Valley, and in the 1990s, fewer than 5 pairs were regularly observed at remaining nesting locales in the Imperial Valley (Hohman and Lee 2001). Recorded breeding in Florida since 1960s, declining in the western United States. Overall, this species is still relatively abundant over much of its original range, which has retracted in some areas (California and Trinidad), but expanded in others (Cuba and Greater Antilles) (Johnsgard 1978).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:	SC (USDI, FWS 1996) [C2 USDI, FWS 1985]
STATE STATUS:	None
OTHER STATUS:	None (USDI, BLM AZ 2005) [Bureau of Land Management Sensitive (USDI, BLM 2000)]

MANAGEMENT FACTORS: Provision of suitable habitat in Arizona (see below). A riparian species that may be sensitive to pesticides, which may be a potential source of mortality.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: The reestablishment of nesting populations of this duck in Arizona should be encouraged. The best opportunities would presumably be on the Imperial and Cibola National Wildlife Refuges and the Arizona Game and Fish Department's Mitty Lake Wildlife Area. Such an attempt would require providing dense grasslike vegetation in shallow marsh situations for a number of years during May through August. The availability of abundant grass seeds and aquatic food sources during this period is also deemed essential; a situation not provided by monotonous stands of bulrush and cattail. Perhaps this could be accomplished by the judicious application of burning and flooding, coupled with rice or millet cultivation. Such a habitat plan would presumably also benefit Black Rails and other herbaceous marsh nesting birds (Brown 1985).

In North America, many aspects of the species' behavior, movements, life history, and demography are unknown or known only from captive studies or studies conducted outside of core breeding and wintering areas (Hohman and Lee 2001). Future research should be centered on these areas.

LAND MANAGEMENT/OWNERSHIP: Bureau of Reclamation.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- American Ornithologists' Union. 1957. Check-List of North American Birds. Fifth Edition. Amer. Ornith. Union, Port City Press, Inc. Baltimore, MD. P. 69.
- Belrose, F.C. 1976. Ducks, Geese and Swans of North America. Stackpole Books, Illinois.
- Boyer, T. and J. Gooders. 1990. American nature guides: Ducks. M. Bramwell Ed. Gallery Books, New York City. Pp. 48-49.
- Brown, D.E. 1985. Arizona Wetlands and Waterfowl. University of Arizona Press, Tucson.
- Brown, H. 1906. The water turkey & tree duck near Tucson, Arizona. The Auk. 23: 217-18.
- Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. The Birder's Handbook: A field guide to the natural history of North American birds. Simon & Schuster Inc., New York. P. 72.
- Farrand, Jr., J. 1988. An Audubon handbook: Western Birds. McGraw-Hill Book Company, New York. P. 94.
- Hohman, W.L., and S.A. Lee. 2001. Fulvous Whistling-Duck (*Dendrocygna bicolor*). In The Birds of North America, No. 562 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, Pa.
- Johnsgard, P.A. 1978. Ducks, Geese, and Swans of the World. University of Nebraska Press.
- Kortwright, F.H. 1967. Ducks, Geese and Swans of North America. Stackpole Books, Illinois.
- National Geographic. 1999. Field Guide to the Birds of North America. Third Edition. National Geographic Society, Washington, D.C. P. 74.
- Peterson, R.T. 1990. Peterson field guides: Western Birds. Third Edition. Houghton Mifflin Company, Boston. Pp. 42-45.
- Robbins, C., B. Bruun, and H. Zim. 1983. Birds of North America. Western Publishing, NY.

- Terres, J.K. 1980. The Audubon Society Encyclopedia of North American Birds. Alfred A. Knopf, NY.
- USDI, Bureau of Land Management. 2000. Arizona BLM Sensitive Species List. Instruction Memorandum No. AZ-2000-018.
- USDI, Bureau of Land Management. 2005. Arizona BLM Sensitive Species List.
- USDI, Fish and Wildlife Service. 1985. Endangered and Threatened Wildlife and Plants; Review of Vertebrate Wildlife; Notice of Review. Federal Register 50(181): 37963.
- USDI, Fish and Wildlife Service. 1996. Endangered and Threatened Species, Plant and Animal Taxa; Proposed Rule. Federal Register 61(40): 7596-7613.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

- William L. Hohman - wildlife biologist, USDA/NRCS, Wildlife Habitat Management Institute, Department of Animal Ecology, Iowa State University, 124 Sciences II, Ames, IA 50011-3221. E-mail: whohman@iastate.edu.
- Sarah A. Lee - Laboratory Technician, Room 344, Biological and Geological Sciences Building, Department of Zoology, University of Western Ontario, London, Ontario, Canada N6A 5B7. E-mail: sarahlee@julian.uwo.ca.

ADDITIONAL INFORMATION:

Because of this species' close association with agricultural habitats, risks of exposure to contaminants, especially pesticides, are considerable. For example, widespread use of aldrin-treated rice to protect against infestation of rice water weevils in the 1960s resulted in abrupt declines in numbers of Fulvous Whistling-ducks in Texas and Louisiana (Flickinger and King 1972). Use of pesticide-treated rice banned in 1974. (Hohman and Lee 2001).

Revised: 2001-02-01 (JDC)
2001-02-06 (SMS)
2001-10-10 (SMS)

To the user of this abstract: you may use the entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 20XX (= **year of last revision as indicated at end of abstract**). X...X (= **taxon of animal or plant**). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.