CANVASBACK - AYTHYA VALISINERIA

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Order: Anseriformes Family: Anatidae Genus: Aythya Species: A. valisineria

Habitat:

Biomes: Canvasbacks breed in small lakes, deep-water marshes, bays, and ponds. They tend toward waters with a dense border of cattails, rushes, and reed grass, but in the boreal forest they use open marshes. During migration and on the wintering grounds, Canvasbacks use marine and freshwater areas including estuaries, lagoons, rivers, ponds, marshes, lakes, and occasionally flooded agricultural fields.

Temperature: Can handle significant day and night-time swings as well as easily handle temperatures as low as -15 degrees Fahrenheit.

Distribution:

In US: Breeding range centered in parklands and mixed prairies of nw. North America; breeding densities appear to be increasing in subarctic Yukon Territory and Alaska

In Other Countries: Casual or accidental in Hawaiian Is., Marshall Is., Iceland, and Germany

Holistic Description: Often called the aristocrat of ducks, the Canvasback holds its long sloping forehead high with a distinguished look. Males stand out with a rusty head and neck and a gleaming whitish body bookended in black. Females are pale brown overall, but that Canvasback head shape still gives them away. This diving duck eats plant tubers at the bottom of lakes and wetlands. It breeds in lakes and marshes and winters by the thousands on freshwater lakes and coastal waters.

Species Richness: NO SUBSPECIES

Evolution and Systematics:

Evolution: Recorded as Pleistocene fossils from Florida and New Mexico from archaeological sites in Alaska (Dutch Harbor), Washington, California, Iowa, and Illinois.

Systematics: Originally described by Alexander Wilson in 1814 as Anas valisineria . Later placed in genus Aythya, which was erected in 1822 by Heinrich Boie to include all diving ducks broadly known as pochards.

Number of Species: NONE, 0 SUBSPECIES

Number of Genera: NONE, 0 SUBSPECIES

Physical Characteristics:

Size and Length: Length: 18.9-22.1 in (48-56 cm) Weight: 30.4-56.0 oz (862-1588 g)

Wingspan: 31.1-35.0 in (79-89 cm)

Coloration: Breeding males have a chestnut head and neck set off against a black chest, whitish body, and black rear. Females are pale brown where males are chestnut and black, and they have a grayish rather than white body. In late summer and early fall, males have brown heads and necks with a paler body. Males have red eyes, and females have dark eyes.

General Body Features: This duck is a surface diver. NONE, USE GENERAL

Special Features of the Body: NONE, USE GENERAL

Special Features of the Head and Sensory Organs: Canvasbacks use their stout, wedge-shaped bill to grub or rip tubers and roots of aquatic plants, whereas redheads are more like aquatic browsers and eat stems and leaves of submersed plants. As you might expect, the canvasback has a longer and heavier bill and a thicker, more muscular neck than the redhead.

Dentition: Lamellae and Gizzard

Special Features of the Limbs and Digits: Have large webbed feet that help the canvasback propel through the water while gathering food. Canvasbacks hollow bones help them float upwards after diving around their local substrates for food.

Any Special Internal Anatomy: NONE, USE GENERAL

Sexual Dimorphisms: **Adult male** (Alternate plumage): most of head and neck a reddish brown, grading to blackish brown on face and crown; upper back black; scapulars and mantle white to pale gray, finely vermiculated with black and grading to brownish black on rump and uppertail coverts; breast black, contrasting with white sides and belly; flanks pale gray lightly vermiculated blackish brown; undertail coverts blackish. Upper wing coverts white, finely vermiculated gray; secondaries pearl gray or gray with narrow blackish margins; primaries and median primary coverts slate brown, underwing surface white to pale gray. Feet and legs grayish blue; bill blackish, inconspicuous nail. **Adult female** (Alternate plumage): forehead, crown, nape, and upper neck light brown to brownish olive; cheeks, chin, and throat whitish buff; lower neck gray-brown, with reddish-brown cast. Mantle and scapulars light gray, feathers with light edges with dark vermiculations toward tips; lower back and rump grayish, many feathers with fine, white vermiculations; uppertail coverts sooty brown; breast brown, sides and flanks dull brown to grayish, finely vermiculated blackish brown; belly white to grayish white; undertail coverts whitish. Upper wing coverts grayish, flecked whitish near tips; secondaries light grayish brown with broad grayish

subterminal band and white tips; primaries and median primary coverts blackish brown, wing-lining pale grayish. Legs and feet grayish blue; bill nearly black, inconspicuous nail.

Differences Between Juvenile Stage and Adult: Immatures (juveniles, Basic I) and adult females similar, but can be distinguished by immature's slightly darker vent, generally darker and less pronounced white flecking on distal ends of wing coverts, and more well-defined white edging and absence of flecking on outer web of secondary-feathers, and much more distinctive vermiculation pattern in adults.

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal

Activity: Canvasbacks are diving ducks at home in the water, seldom going ashore to dry land. They sleep on the water with their bill tucked under the wing, and they nest on floating mats of vegetation. To get airborne Canvasbacks need a running start, but once in the air they are strong and fast fliers, clocking airspeeds of up to 56 miles per hour. Canvasbacks are social outside of the breeding season; they gather in large rafts by the thousands to tens of thousands. Only when winter food is scarce or clumped do they defend foraging areas against other Canvasbacks. During spring and early in the breeding season, they act more aggressively. Threat displays include putting the bill in the water or on the chest, jabbing, pumping the head, or chasing. Pairs begin forming during spring migration and continue on the breeding grounds. Courting male ducks gather around one female, assessing each other with a series of head movements until the female chooses one of them. Males stretch their necks, lower their heads while giving a coughing sound, and toss their head all the way back until it reaches the top of the back. Females stretch their necks and raise and lower their head to signal acceptance of a male. About halfway through incubation, males move to large fresh and brackish wetlands in central and western Canada to molt before migrating south in the fall. During this flightless period, males stay away from the shore, feeding on submerged vegetation and resting on islands. Females continue to incubate and feed hatchlings until it is time to migrate south.

Locomotion: Seldom on dry land; female may travel overland short distances when moving brood from nesting to brooding habitat. Takes flight by running on water before becoming airborne; flight direct, with powerful, steady, rapid wing beats. On migration or during regional movements, flies in irregular-sized, V-shaped flocks; capable of long-distance flights during migration; one of fastest flying ducks, capable of 50–90 km/h air speeds and ground speeds of 90–115 km/h.Swims well; large feet, legs positioned posteriorly on body for efficient swimming and diving; swims between resting and foraging sites, and when disturbed; percentage of time spent swimming varies with season, habitat, and disturbance.

Communication and Perception: Canvasbacks are generally silent. Males make soft cooing sounds and females give a guttural krrr-krrr during courtship. Nonbreeding birds make a wheezing call when other Canvasbacks approach a feeding area. Females sometimes quack when taking flight.

Home Range: In sw. Manitoba, no evidence of breeding-season territoriality. In early spring, breeding pairs occupy nonexclusive and broadly overlapping home ranges that vary in size for individuals, by consort status, and by reproductive status; average home-range size through breeding season using Minimum Complex Polygon method; largest during prelaying, smallest during incubation; within home range, pairs commonly use ponds occupied by other Canvasbacks; do not defend entire ponds, only a limited area immediately around pair.

Degree of Sociality: Nonterritorial during breeding season, but pairs largely disassociate from conspecifics; very gregarious, flocking species during non-breeding season. Males gradually spend less time with their mates during incubation and form small (10–20) transient male aggregations, which eventually stabilize and depart together for larger molting lakes, where they congregate with other species in loosely structured flocks of hundreds to thousands of individuals; during molt, tend to remain in species-specific flocks. During fall migration, travel in small (10–20) aggregations of mostly adult males, or females and juveniles; concentrate at staging areas and on wintering grounds in extremely large flocks (tens of thousands of individuals). Occurrence in large, dense flocks appears to aid in predator detection and predator evasion through confusion effect; in areas where predators are active, occur in large, dense flocks during the day while dispersing into small, loose groups at night to feed.

Level of Aggression: Frequency of physical interactions (approach threats, Bill-in-Water, Bill-on-Chest, bill-jabs, rushing, pushing, chasing, pursuit flights and dives, and fights) highest during courtship, and early stages of breeding. During spring migration, in early stages of pairing, paired Canvasbacks spend more time in foraging aggression and initiate and win more encounters than unpaired individuals; paired females rather than males assume primary role in foraging aggression and in repelling courtship advances of other males.

Migration: Short- to medium-distance migrant, scattered populations regularly winter within breeding range in w. North America and infrequently in Great Lakes region. In areas where species occurs year-round, breeding and wintering populations may differ. Typically migrates in small flocks, 10–40 birds, with flocks coalescing into larger assemblies at specific staging and wintering areas. Males and nonbreeders undertake an extensive molt-migration.

Predators:
Predators: **Eggs**. Common predators include raccoon (Procyon lotor; Stoudt 1982, Maxson and Riggs 1996a), striped skunk (Mephitis mephitis; Stoudt 1982), red fox (Vulpes vulpes; Erickson 1948, Stoudt 1982), mink (Mustela vison; Stoudt 1971, Fournier and Hines 1998b), short-tailed weasel (Mustela ermina, Stoudt 1982), American Crow (Corvus brachyrhynchos; Stoudt 1982), Black-billed Magpie (Pica hudsonia; Stoudt 1971), Common Raven (Corvus corax; Erickson 1948, Fournier and Hines 1998b), and California Gull (Larus californicus; Erickson 1948).
Young and Adults. Common predators: mink (Thompson 1992b, Korschgen et al. 1996c), coyote (Canis latrans; Erickson 1948), red fox (Korschgen et al. 1996b), Great Black-backed Gull (Larus marinus; Lovvorn 1989b), Bald Eagle (Haliaeetus leucocephalus; Lovvorn 1989b), Great Horned Owl (Bubo virginianus; Haramis et al. Haramis et al. 1993, Korschgen et al. 1996b), Black-crowned Night-Heron (Nycticorax nycticorax; Korschgen et al. 1996c), snapping turtle (Chelydra serpentina, Korschgen et al. 1996b), and northern pike (Esox lucius; Solman 1945).
Anti-Predator Defenses: When surprised while incubating, female silently moves off nest into water. When brood threatened by avian predator, female gives alarm call and ducklings dive or quickly move into emergent vegetation. During migration, at staging areas, and on wintering grounds, Canvasbacks form large flocks as antipredatory tactic (Lovvorn 1989b); response to avian predator is to take flight, with mass confusion serving as an evasion tactic. Tactics such as these (dense flocking, selfish herding, and confusion effect) probably have been favored by Canvasbacks because of loss of vigilance while foraging underwater and morphological constraints on takeoff abilities.
Diet and Nutrition:
Adult Diet: When surprised while incubating, female silently moves off nest into water. When brood threatened by avian predator, female gives alarm call and ducklings dive or quickly move into emergent vegetation. During migration, at staging areas, and on wintering grounds, Canvasbacks form large flocks as antipredatory tactic (Lovvorn 1989b); response to avian predator is to take flight, with mass confusion serving as an evasion tactic. Tactics such as these (dense flocking, selfish herding, and confusion effect) probably have been favored by Canvasbacks because of loss of vigilance while foraging underwater and morphological constraints on takeoff abilities
Juvenile Diet: Omnivorous; foods exploited vary depending upon availability. During winter and migration, mainly plants (winter buds, rhizomes, and tubers of aquatic plants); when plant foods limited, takes small clams and snails. Consumes both plant and animal material throughout breeding season (seeds, buds, leaves, rhizomes, tubers, and root stalks of aquatic plants), and snails, caddisfly (Trichoptera) larvae, damselfly and dragonfly (Odonata) nymphs, mayfly (Ephemeroptera) nymphs, and midge (Tendipedidae) larvae.
Special Adaptations for Getting Prey: Canvasback behaviorally, morphologically, and anatomically specialized for feeding on subterranean plant and animal materials. During individual foraging dives, lifts foreparts of body clear of water and arches neck so that it submerges vertically; underwater, orients long axis of body perpendicular to water surface and uses alternate strokes of legs to maximize force for inserting bill into substrate to locate buried food items. Long, narrow, moderately sloping head and bill well adapted for probing substrate, and powerful jaws capable of grasping and extracting plant tubers. Perpendicular orientation during foraging dives maintains position in area where tubers located by limiting horizontal movement; resurfaces close to original site of submergence by turning body to horizontal and passively floating to surface by positive buoyancy.
Reproduction:
Mode of Reproduction: Monogamous
Mating System: Seasonally monogamous, but some males commonly engage in extra-pair courtship and sometimes breed with a second female after leaving their first mate; of 47 marked-bird breeding sequences, 8 (17%) involved a mate switch, most during renesting; forced copulations and polygyny rarely observed.
Mating Season: Around Mid-February
Courtship:
Neck-Stretch. While in normal or alert posture (both sexes), swimming or stationary, head and neck stretched vertically upward; bill may be upturned about 30° from plane of body; head facing forward; posture held for several seconds at fullest extent of stretch; bill turned slowly from side to side; return to normal; male may perform mummur (very soft, repeated 1-syllable " rrrr ") vocalization with Neck-Stretch (M. Anderson unpubl. data). Performed in a variety of social situations, by individual Canvasbacks or by mates mutually, as single movements or several movements sequentially, and performed more often than any other display. In courtship, given on water when 2 to several males jockey for position around a single female; males Neck-Stretch repeatedly toward a Neck-Stretching or threatening female. Regularly performed by mates after agonistic interactions.

Inciting. While following her mate or potential mate, female alternates repeatedly between postures, from a head-lowered and laterally directed threatlike posture toward intruder, to a Neck-Stretch posture angled toward its mate; lateral posture may break into a short rush threat or thrust, and female may give kuk calls during rush. Performed by females after the establishment of at least temporary liaisons, in response to the approach of displaying males.

Sneak. While male swims or is stationary in water, head and neck lowered and extended forward, crown feathers depressed; once posture assumed, it is held stiffly for several seconds; coughing or soft calls often performed with Sneak postures. Common courtship behavior among males displaying tightly around a female; in pair/pair aggressive encounters on feeding ponds early in season; by paired males when courting other females; a graded display in which orientation seems very important in modifying signal functions.

Kinked-Neck. Performed by male in normal posture; head and neck lowered slightly, crown feathers depressed, bill oriented roughly parallel to water and normally pointed toward mate; neck bent as a large bulge appears in upper throat; bill is opened and an explosive 2-syllable call snapped out as throat and head return to normal position. Call sounds like an explosive err-kiuoow close up or a dovelike cu-ooo at a distance. Performed by paired males to their mates during social interactions and occasionally when separated from and searching for their mates (e.g., during nest-site selection).

Head-Throw. While male is swimming normally or alert, it stops and abruptly throws its head backward until crown touches back; after a brief pause, head snapped forward to finishing posture; at backward extent, body is tipped slightly backward from surface plane; as head thrown backward, a low amplitude ick-ick-coo note is uttered (similar to Kinked-Neck call but with an extra initial syllable). Performed most often by unpaired males in social courtship, also by paired males to their mate during interactions involving other males displaying to their female.

Turn-the-Back-of-the-Head. While male swimming alert, ahead of female, body normal, head held moderately alert to slightly crouched, bill level, neck stiff, head turned slowly, orienting back of head toward following female, then turning head again; movement repeated in a short series. Performed in courtship by “paired” male as female is being displayed to by other males; common early in pair formation; rarely seen in well-established pairs.
Territoriality: In early spring, breeding pairs occupy nonexclusive and broadly overlapping home ranges that vary in size for individuals, by consort status, and by reproductive status; average home-range size through breeding season (postarrival through incubation) using Minimum Complex Polygon method, 73 ha (n = 17 pairs); largest during prelaying (>150 ha), smallest during incubation; within home range, pairs commonly use ponds occupied by other Canvasbacks; do not defend entire ponds, only a limited area immediately around pair
Mating: In copulations (always on water), female stops swimming and assumes a prostrate position, in which only bill, crown, and a small part of back are visible above water, prior to a slow mount from the side by male while grasping female's nape in his bill. Once mounted, female nearly sinks out of sight; male remains on top of female for about 10 s; pairs normally copulate 2 or 3 times/d Apr–early Jun (n = 650 h of observation). Following copulation, male dismounts and assumes Bill-Down posture (stiffly arched posture with bill pointing down [ca. 80°] toward water, neck sharply arched and held high, while swimming apart from partner; male utters a single soft call); female also assumes Bill-Down posture, but for shorter duration and pair may swim apart, parallel to one another, or in tight circles (M. Anderson pers. comm.). Bill-Down posture usually breaks into a session of vigorous bathing and preening.
Nesting: Female Canvasbacks select the nest spot, typically in shallow wetlands with cattails, rushes, sedges, and reeds. The nest is most frequently built over water, but sometimes on land. Female Canvasbacks build a large bulky platform of sedges, reeds, cattails, and rushes. Females loosely weave the material together and attach it to emergent stalks of vegetation, such that the nest floats on the water. Many nests are also covered from above by a canopy of plant stalks. Females continue to add material and down feathers to the nest for the first 10 days of incubation.
Egg-Laying: Clutch Size: 5-11 eggs Number of Broods: 1 brood Egg Length: 2.4-2.6 in (6-6.7 cm) Egg Width: 1.8-1.7 in (4.5-4.4 cm) Incubation Period: 24-29 days Egg Description: Greenish drab.
Hatching and Incubation/Gestation: Covered in down and able to leave the nest soon after hatching.
Development: NONE
Parental Care: Precocial young able to dive as soon as down is dry, but obtain most of their food by dabbling, surface-gleaning, and snatching aerial insects for first 2 wk; not fed by female; feeding activity greatest during early morning and early evening

Lifespan: The oldest wild canvasback captured was 22 years and 7 months old, the next longest recorded lifespan in a wild canvasback was 16 years 11 months.

Conservation:

Official Federal Status: Least Concern

Special Statuses in Individual States: NONE

Threats: Canvasback populations have fluctuated widely since the 1950s. Low numbers in the 1980s put the Canvasback on species of special concern lists, but numbers increased greatly in the 1990s. The North American Breeding Bird Survey suggests that the population has been stable from 1966 through 2015. In 2017, the U.S. Fish and Wildlife Service estimated the U.S. population at around 700,000 individuals. Partners in Flight estimated the global breeding population at 670,000. The species rates a 10 out of 20 on the Continental Concern Score, which means it is not on the Partners in Flight Watch List and is a species of low conservation concern. Fluctuations in numbers are likely due to wetland loss and to changes in water levels that reduce the number of available nest sites. The suggestion is that Canvasbacks did well in wet years and poorly in dry years. In the Prairie Provinces in Canada around 40% of original wetlands were lost between 1951 and 1981. In North and South Dakota 3.6 million acres of wetlands have been lost and another 3.6 million were lost in Minnesota. Loss of wild celery, a primary food source, due to pollution, siltation, and eutrophication also made some areas useless for Canvasbacks; their migration routes and wintering sites changed during the last 40 years as a result. Hunting may also contribute to fluctuations as harvest limits have changed over the last 3 decades. The U.S. Fish and Wildlife Service manages duck hunting and limits the number of individuals hunters can take every year based on population size. From 2012–2106, hunters took on average 114,495 Canvasback annually.

Conservation Efforts: ^^^

Extra Facts:

The species name of the Canvasback, valisineria, comes from Vallisneria americana, or wild celery, whose winter buds and stems are the duck’s preferred food during the nonbreeding period.

In the world of ducks, females abide by the saying, “don't put all your eggs in one basket.” Female Canvasbacks sometimes lay eggs in another Canvasback's nest; and Redheads and Ruddy Ducks sometimes lay their eggs in a Canvasback's nest.

The oldest recorded Canvasback was a male, and at least 22 years, 7 months old when he was shot in California in 1991. He had been banded in the same state in 1969.