NORTHERN SHOVELER - ANAS CLYPEATA

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Order: Anseriformes Family: Anatidae Genus: Spatula Species: S. clypeata (A molecular phylogenetic study comparing mitochondrial DNA sequences published in 2009 found that the genus Anas, as then defined, was non-monophyletic. Based on this published phylogeny, the genus Anas was split into four monophyletic genera with ten species moved into the resurrected genus Spatula.)

Habitat:

Biomes: Northern Shovelers use shallow wetlands with submerged vegetation during the breeding season, nesting along the margins and in the neighboring grassy fields. Outside of the breeding season they forage in saltmarshes, estuaries, lakes, flooded fields, wetlands, agricultural ponds, and wastewater ponds.

Flight Ceiling: 400 to 2,000 feet

Temperature: Can survive temperatures as low as -15 degrees F with out any hassle/problem.

Distribution:

In US: This bird winters in southern Europe, Africa, the Indian Subcontinent, northern South America, Malay Archipelago, Japan and other areas. Those wintering in the Indian Subcontinent make the taxing journey over the Himalayas, often taking a break in wetlands just south of the Himalaya before continuing further south to warmer regions. In North America it winters south of a line from Washington to Idaho and from New Mexico east to Kentucky, also along the Eastern Seaboard as far north as Massachusetts. In the British Isles, home to more than 20% of the North Western European population, it is best known as a winter visitor, although it is more frequently seen in southern and eastern England, especially around the Ouse Washes, the Humber and the North Kent Marshes, and in much smaller numbers in Scotland and western parts of England. In winter, breeding birds move south, and are replaced by an influx of continental birds from further north. It breeds across most of Ireland, but the population there is very difficult to assess.

In Other Countries: INCLUDES INFORMATION, LOOK UP

Holistic Description: Perhaps the most outwardly distinctive of the dabbling ducks thanks to its large spoon-shaped bill, the Northern Shoveler busily forages head down in shallow wetlands. Its uniquely shaped bill has comblike projections along its edges, which filter out tiny crustaceans and seeds from the water. If the bill doesn't catch your eye, the male's blocky color palette sure will, with its bright white chest, rusty sides, and green head. The female is no less interesting with a giant orange bill and mottled brown plumage.

Species Richness: NO SUBSPECIES

Population Dynamic: NO INFORMATION

Evolution and Systematics:

Evolution: Fossils of A. clypeata have been found in Pleistocene deposits in England, Monaco, Italy, Azerbaijan, Oregon, California, Nevada, Kansas, Iowa, Illinois, and Florida (Brodkorb Brodkorb 1959c, Brodkorb 1964a). Rancholabrean (Pleistocene) Northern Shoveler fossil bones have been discovered in Little Box Elder Cave, Converse Co., WY

Systematics: Monotypic. Belongs to a group of 7 species of dabbling ducks commonly known as "blue-winged ducks" (McKinney 1970), distinguished by blue patches on the upper wing coverts. These 7 species comprise 4 "shoveler" and 3 "teal" species. The 3 other shovelers are Southern Hemispheric species: Cape Shoveler (Anas smithi) of s. Africa, Australasian Shoveler (A. rhynchotis) of s. Australia and New Zealand, and Red Shoveler (A. platalea) of s. South America. At times the 4 shoveler species have been placed in their own genus, Spatula . No postcranial skeletal characteristics separate " Spatula " from Anas, however (Woolfenden 1961). The 2 other species of blue-winged ducks found in North America are Blue-winged Teal and Cinnamon Teal. The third "teal" species is the Garganey (A. querquedula) of the Old World.

Number of Species: NONE

Number of Genera: NONE

Physical Characteristics:

Size and Length: Length: 17.3-20.1 in (44-51 cm) Weight: 14.1-28.9 oz (400-820 g)

Wingspan: 27.2-33.1 in (69-84 cm)

Coloration: Breeding male shovelers are bold white, blue, green, and rust, but their most notable feature is their white chest and white lower sides. In flight, males flash blue on the upper wing and green on the secondaries (the speculum). Female and immature shovelers are mottled in brown and have powdery-blue on the wings that is sometimes visible on resting birds. Their very large orange bill is their most notable field mark.

General Body Features: Previous studies have shown that Northern Shovelers feed primarily by holding their bills in the water while swimming, straining out small invertebrates by continually dabbling.

Special Features of the Body: Their bills allow them to strain food from water. Shovelers bills are adapted for their mode of feeding. Northern shovelers are good swimmers, which is one of their greatest advantage and adaptive feature.
Special Features of the Head and Sensory Organs: NONE, IF ASKED USE GENERAL DUCK
Dentition: Lamellae and Gizzard Combination
Special Features of the Limbs and Digits: NONE, IF ASKED USE GENERAL DUCK
Any Special Internal Anatomy: NONE, IF ASKED USE GENERAL DUCK
Sexual Dimorphisms: In early fall the male will have a white crescent on each side of the face. In non-breeding (eclipse) plumage, the drake resembles the female. The female is a drab mottled brown like other dabblers, with plumage much like a female mallard, but easily distinguished by the long broad bill, which is gray tinged with orange on cutting edge and lower mandible. The female's forewing is gray.
Differences Between Juvenile Stage and Adult: CHECK COLOR, [Not much information regarding juveniles]
Behavior:
Diurnal, Nocturnal, or Crepuscular: Diurnal
Activity: Daily time budget. Most common activity is feeding. Depending on time of year (and weather conditions), feeding varies from 24.3 to 84.2% of time (Appendix 1). During breeding, females spend more time foraging than males. Birds feed during all times of day, but rest more frequently as breeding progresses. Percent time males spent alert is at maximum (24.3%) during laying period (Afton 1979b).
AND
Northern Shovelers swim through wetlands, often with their bills down in the water, swinging them side to side to filter out tiny crustacean prey. Sometimes large groups swim in circles to stir up food. They don't forage on land regularly, but they do rest on land and walk along wetland edges. They are fairly social ducks, occurring in groups with shovelers and other dabbling ducks, especially during the winter. During the breeding season, they are less tolerant of other shovelers encroaching on their territory. Defensive males often chase intruders on the water and in the air. Males court females on the wintering grounds with turns, dips, wing flaps, and head pumping. Pairs stay together during the breeding season, although males will occasionally mate with a second female. After breeding, males group together in small flocks before and after molting. Males molt their flight feathers before migrating south, becoming flightless for a brief period, when they tend to stay hidden in vegetation especially at night.
Locomotion: Principal modes of locomotion are swimming and flying. Walks easily on land, but except for females cautiously walking to nest or leading ducklings to water, rarely for long distance. In flight, head and bill downturned; long neck, head, and bill give bird a “hunched-back” appearance.
Communication and Perception: Males give a wheezy took-took during courtship, in flight, and when alarmed. Females make a nasal-sounding quack typically during courtship and throughout the breeding season.
Home Range: Male Northern Shoveler is not truly territorial, but of all North American dabbling ducks, it most actively defends a core area (occupied 60–90% of daylight hours) of its home range from conspecifics during the breeding season. Boundary of core area fluctuates with male's internal condition and external stimuli (Seymour 1974d, Poston 1974). Using a captive female in a decoy trap, Seymour (Seymour 1974c) demonstrated that presence of female and not topography is of paramount importance in determining where defensive behavior of male occurs; males deserted their original territories and followed the caged female. Once established, males held sites even in absence of female. Attachment to home range by males is gen-erally longer than for other dabbling ducks (often until last week of incubation; Poston 1974, Afton 1979b, DuBowy 1980). Territories are aggressively defended by males, particularly during laying period (McKinney 1970). Food resources on territory are critical to successful incubation by females (Afton Afton 1977, Afton 1979b, Ankney and Afton 1988).
Degree of Sociality: Little intraspecific or interspecific hostility during spring migration (Poston 1974), but these increase as season progresses. However, territorial nature of this species may actually reduce intraspecific interactions. As territories are settled in spring, pairs become unsocial and males drive away other pairs (see Agonistic Behavior, above). After breeding, males form postbreeding assemblages before and after flightless period (see Breeding: postbreeding, below). During migration, small assemblages of up to a few hundred birds form. Likewise, small assemblages form on wintering grounds.
Level of Aggression: Territories are aggressively defended by males, particularly during laying period (McKinney 1970). Food resources on territory are critical to successful incubation by females. These ducks are usually defensive and not really that aggressive.
Temperament: Extremely aggressive during breeding season and have a short temperament with conspecifics in their home range.

Migration: Annual migrant throughout most of its range. Most migration east of the Rocky Mtns. is north-south; few birds move east to winter on the Atlantic Coast. Additionally, large numbers of birds cross the Rocky Mtns. to/from California and Mexico. Unlike other waterfowl, male usually does not undertake an extensive molt migration.

Predators:

Predators: Formed 9% of the prey remains (n = 1,057) of adult dabbling ducks (nearly all ducks identified) at red fox (Vulpes vulpes) dens in N. Dakota, S. Dakota, Iowa, and Minnesota (Sargeant et al. 1984). An average of 90% of the Northern Shoveler remains identified in e. North and South Dakota were females, most likely incubating eggs. Slightly higher percentage (9.8 vs. 8.4) of Northern Shovelers in fox-den remains during late (mid-Jun to mid-Jul) versus early (late Apr to early Jun) sample periods, suggesting females are more vulnerable during the late nesting season. Northern Shoveler also vulnerable to mammalian (red fox and mink [Mustela vison]) predation at Union Slough National Wildlife Refuge, IA (Fleskes and Klaas 1991). Mammals responsible for two-thirds of the nests reported destroyed; skunks (Mustelidae) responsible for 85% of this destruction, ground squirrels (Sciuridae) the rest. American Crows (Corvus brachyrhynchos) and Black-billed Magpies (Pica pica) account for about three-fourths and gulls (Larus spp.) one-fourth of nest losses attributed to birds. ***Highest rates of predation on females incubating at nest.***

Anti-Predator Defenses: Late in incubation, females will perform a distraction display ("feigning injury"), flapping over the ground or water with simultaneous wing actions (McKinney 1970). Additionally, females often defecate on eggs when flushed off nest, presumably to deter predators; eggs smeared with fresh feces prevent captive Norway rats (Rattus norvegicus) and ferrets (Mustela putorius) from eating eggs

Diet and Nutrition:

Adult Diet: Shovelers eat tiny crustaceans, other aquatic invertebrates, and seeds which they filter out of the water with comblike projections (called lamellae) along the edge of the bill.

Juvenile Diet: Major food items. In summer, adult males eat mostly cladocerans (Daphnia and related genera). These small crustaceans occur in dense numbers and are often easy to obtain by straining the water column. Also seeds, corixids, and chironomids (larvae, pupae, and adults). Early studies suggested diet mostly vegetation, seeds; such studies generally examined gizzard contents, however, often after they were left intact in the duck for long periods of time. Consequently, most small crustaceans and other invertebrates would have been broken down or partially digested, biasing data toward food items that resist digestion, especially seeds or vegetation [NOT REALLY, BOTH COMBINED] [JUV IS NOT JUV]

Special Adaptations for Getting Prey: Bill morphology adapted for straining food items from water (Table 1). Also may swim occasionally with head under water or tip-up or dive to feed under water (DuBowy 1985b, Tietje 1986). Forages mostly during day, but also at night, especially during full moon.

Reproduction:

Mode of Reproduction: Monogamous, Internal

Mating System: Monogamous, although facultatively polygynous; due to territorial system, males have considerably fewer opportunities to mate with second females. However, male will mate with females that are renesting after loss of first clutch due to predation

Mating Season: December-January

Courtship: Male courtship behaviors include Repeated Calls (evenly spaced calls, took-took), Fast Calls, Turn-back-of-head (male swims away from female and shows back of head), Lateral Dabbling, Head Dip and Up-end (derived from feeding movements), Wing Flap (wings make loud clapping noise after bathing), and Jump Flight (erect posture and preflight intention movements leading to a short flight) (Lebret 1958b, McKinney 1970). Copulatory behaviors include Precopulatory Head Pumping (bill pointing downward), rhythmical wheezy calls during copulation, and Postcopulatory Posturing (male's body is positioned lateral to female with bill pointed downward at a 60° angle). Female displays associated with breeding include loud, repeated quacks, including prelaying Persistent Quacking, and Repulsion Calls (

Territoriality: Male Northern Shoveler is not truly territorial, but of all North American dabbling ducks, it most actively defends a core area (occupied 60–90% of daylight hours) of its home range from conspecifics during the breeding season. Boundary of core area fluctuates with male's internal condition and external stimuli (Seymour 1974d, Poston 1974). Using a captive female in a decoy trap, Seymour (Seymour 1974c) demonstrated that presence of female and not topography is of paramount importance in determining where defensive behavior of male occurs; males deserted their original territories and followed the caged female. Once established, males held sites even in absence of female. Attachment to home range by males is gen-erally longer than for other dabbling ducks (often until last week of incubation; Poston 1974, Afton 1979b, DuBowy 1980). Territories are aggressively defended by males, particularly during laying period (McKinney 1970). Food resources on territory are critical to successful incubation by females

Nesting: Females make a small depression on the ground, generally in areas with short vegetation within 150 feet of water. Females use their body, feet, and bill to make a small depression on the ground about 8 inches wide. The nest scrape is usually surrounded on at least three sides by vegetation and lined with downy feathers.
Egg-Laying: Clutch Size: 8-12 eggs Number of Broods: 1 brood Egg Length: 1.8-2.2 in (4.6-5.7 cm) Egg Width: 1.3-1.5 in (3.3-3.9 cm) Incubation Period: 22-25 days Egg Description: Pale greenish gray or olive-buff.
Hatching and Incubation/Gestation: Clutch Size: 8-12 eggs Number of Broods: 1 brood Egg Length: 1.8-2.2 in (4.6-5.7 cm) Egg Width: 1.3-1.5 in (3.3-3.9 cm) Incubation Period: 22-25 days Egg Description: Pale greenish gray or olive-buff.
Development: By 6 wk, ducklings fully fledged, except for the wings where flight feathers are still emerging.
Parental Care: By female only. Often leads brood from one wetland or pond to another, but timing and duration of residence on a particular body of water appear to be random.
Lifespan: Around 18.53 years in the wild.
Conservation:
Official Federal Status: Least Concern
Threats: Northern Shovelers are common and their populations were stable between 1966 and 2015, according to the North American Breeding Bird Survey. Partners in Flight estimates the global breeding population at 4.5 million. The species rates an 8 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. The U.S. Fish and Wildlife Service carefully manages duck hunting, and limits the number of individuals hunters can take every year based on population size. From 2012–2016, hunters have taken an average of 705,533 Northern Shovelers per year.
Conservation Efforts: ^^^^^
Extra Facts:
The bill of the Northern Shoveler is big (about 2.5 inches long) and shaped like a shovel, but that odd-shaped bill also has about 110 fine projections (called lamellae) along the edges that act like a colander, filtering out tiny crustaceans, seeds, and aquatic invertebrates from the water.
Northern Shovelers are monogamous and remain together longer than pairs of most other dabbling ducks. They form bonds on the wintering grounds and stay together until just before fall migration.
When flushed off the nest, a female Northern Shoveler often defecates on its eggs, apparently to deter predators.
Northern Shovelers don't just occur in the Americas, they also breed across Europe and spend the winter throughout Europe, Africa, and India.
The oldest recorded Northern Shoveler was a male, and at least 16 years, 7 months old when he was found in Nevada.
Notable Species:
NONE