Adopt-A-Duck – Northern Pintail
Curriculum Introduction

Objectives:

- Describe the viewpoint of a dabbling duck while dabbling underwater through group discussion, in writing, and/or through watercolor painting
- Identify waterfowl food sources from a wetland through group discussion, in writing, and/or through watercolor painting
- Identify and infer causes of waterfowl species population decline and potential solutions through group discussion
- Identify the importance of wetlands for waterfowl survival through group discussion

Materials:

- 4-H "Wetlands and Waterfowl Kit" (contact your local Delaware 4-H office for more information)
  - 6 tin cans with edges taped in box
  - Plastic wrap
  - Black trash bags
  - Rubber bands
  - Tape
  - Aquarium rocks
  - Aquarium plants
  - Fishing worms
  - Large- and medium-sized rocks
  - Shells
- Watercolor paints
- Plastic cups with water
- Watercolor paper
- Paint brushes
- Additional printouts of p. 8-13 (one for each group)
- Scissors
- Pencils
- Nature Notebooks (or notebook paper)

Instructions:
Go through each of the sections below and lead discussion on each topic, then complete the associated science and/or art activity associated with each. The sections/activities are as follows:

Following the Adopt-A-Duck curriculum, visit:

- http://extension.udel.edu/4h/junior-duck-stamp-program/ for more information on the Delaware Junior Duck Stamp Program (DE JDSP) and state competition deadlines
- http://www.fws.gov/birds/education/junior-duck-stamp-conservation-program/junior-duck-stamp-contest-information.php for more information on JDSP competition rules and resources

Developed by A. Starcher, December 2015

What is a Northern Pintail?
Northern pintails (*Anas acuta*) are a type of dabbling duck common in Delaware, but are found throughout North America. They get their name from their elongated central tail feather, and their slender anatomy has earned them the nickname of "greyhound of the air." These waterfowl are among the first to migrate south in the fall and the first to migrate north in the spring. Female northern pintails will typically nest far from water in low or sparse vegetation.

"Male northern pintails have a chocolate-brown head with a white stripe on each side of the neck extending up from the white breast and belly. The back is blackish-gray and the rump has a white patch on each side. Two of the long central tail feathers are black while the others are gray margined by white. In flight, an iridescent greenish-black speculum is displayed. The bill is blue-gray with a black stripe along the center to the tip, and the legs and feet are slate-gray. The male has a mellow whistled 'kwee' or 'kwee-hee.' Female northern pintails have a dark-brown upper body with a buff or gray head and lower body. The speculum is a dull brown or bronze. The bill is blue-gray blotched with black, and the legs and feet are slate-gray. Female vocalization is a hoarse, muffled 'quack.'" – Ducks Unlimited Waterfowl ID – Northern Pintail

To listen to a northern pintail call, visit http://www.ducks.org/hunting/waterfowl-id/northern-pintail#ad-image-0.

Images and description quotation retrieved on 6 December 2015 from http://www.ducks.org/hunting/waterfowl-id/northern-pintail#ad-image-0

Northern Pintails are Dabbling Ducks
Northern pintails are a type of dabbling duck (also called a puddle duck). Read the information on "Puddle Duck Behavior" from the Junior Duck Stamp Educator Guide and discuss with the participants. Follow this discussion with the "Darby Duck, the Aquatic Crusader: Critter Scope" observation and the "The world from the point of view of a dabbling duck" painting activities.

Puddle Duck Behavior[1]

Puddle ducks are typically birds of fresh, shallow marshes and rivers rather than of large lakes and bays. They are good divers, but usually feed by dabbling or tipping rather than submerging.

The speculum, or colored wing patch, is generally iridescent and bright, and often a telltale field mark.

Any duck feeding in croplands will likely be a puddle duck, for most of this group are sure-footed and can walk and run well on land. Their diet is mostly vegetable, and grain-fed Mallards or Northern Pintails or acorn-fattened Wood Ducks are highly regarded as food.

Illustrations by Bob Hines

[1] From: http://flyways.us/duck-identification-resources/ducks-at-a-distance/puddle-ducks

[2] From: http://www.ducks.org/conservation/waterfowl-biology/duckling-survival

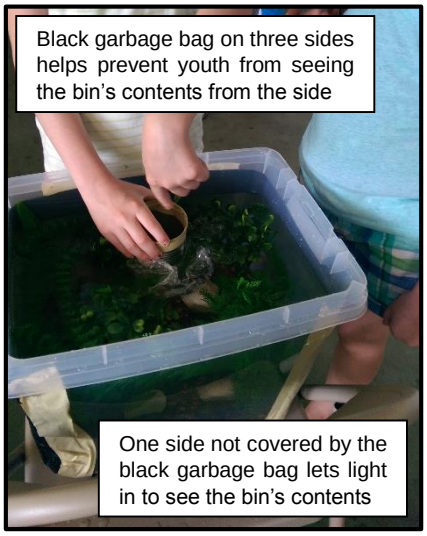
USFWS JDSP Educator Guide "Puddle Duck Behavior" retrieved on 6 December 2015 from http://www.fws.gov/migratorybirds/pdf/education/JuniorDuckStamp-EducatorGuide.pdf

Critter Scope

- To prepare the critter scopes, follow the directions given in the "Critter Scope" instructions below. These can be used with the "Wetlands and Waterfowl" kit indoors or they may be taken outside and used in a pond or wetland.

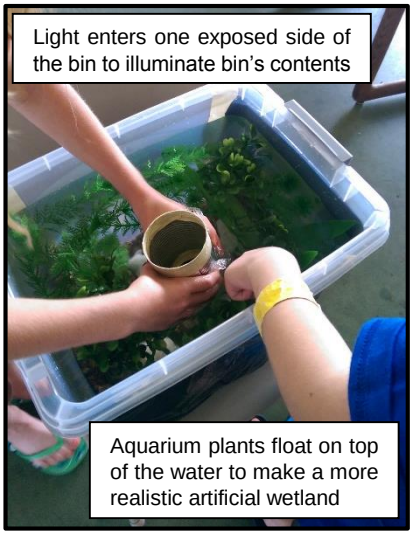
  **Note: If using the critter scopes outside, it is important that the participants are supervised at all times.*

- Wetland Kit Preparation:
  - To use the critter scopes with the "Wetlands and Waterfowl" kit, begin by removing all of the bin's contents.
  - Using masking tape, tape a black garbage bag around three sides of the bin, leaving one of the longer sides exposed to light (see image below). Using the black garbage bag in this way helps conceal the contents of the bin from the participants while they are not doing the activity, but also allows sufficient light in to see the bin's contents while they are completing the activity.
  - Pour aquarium rocks into the bin, and top with larger rocks, shells, fishing worms, and the aquarium plants with bases.
  - Fill the bin with DISTILLED WATER.
  - Allow the aquarium plants without bases to float on top of the water.



- Wetland Kit Use:
  - Tell the participants that they will get to be a dabbling duck and see what a dabbling duck sees while it is dabbling underwater.
  - The participants can come to the side with the black garbage bag to look into the artificial wetland using their critter scopes. Discuss with them what a dabbling duck sees. Ask them what they see in this "wetland" that would be good food for a dabbling duck. They should list vegetation, roots (not seen but implied), worms, and mollusks (indicated by the shells). Discuss with them other waterfowl food sources in a wetland.

- Wetland Kit Cleanup:
  - Plastic wrap used for critter scopes and the black trash bag may be discarded.
  - Remove floating aquarium plants and place on paper towels to air dry.
  - Carefully pour the water from the bin.
  - Remove all aquarium plants, large rocks, shells, and fishing worms, and place on a paper towel to air dry.
  - Use paper towels to soak up as much water from the small aquarium rocks as possible, and then allow to air dry.
  - Allow all items to air dry completely before returning to the bin in their proper containers.



Darby Duck, the Aquatic Crusader: Critter Scopes

Critter Scope

Did you ever wonder what life is like under water?

Well now is your chance to find out where different insects and their larvae or nymphs live in a stream. The critter scope is an exploring tool that can peek into the lifestyles of the wet and wiggly world.

Materials

- a can opener
- a clean coffee can or large juice can
- waterproof tape or duct tape
- clear plastic wrap
- a large and strong rubber band
- scissors

Procedure

1. Carefully remove both ends of the can and cover sharp edges with tape.
2. Place plastic wrap around one end of the can, leaving about one inch extra around the edge.
3. Put a rubber band around the can and plastic to keep the plastic wrap tight.
4. Cut excess plastic wrap away and put tape over the rubber band and plastic wrap.
5. Take your critter scope for a test run in a sink. Look through the open end and place the closed end (the one with the plastic on it) in the water.
6. Now you are able to visit the wet and wiggly world of a stream.

Note: You might want to try using a clear plastic cover from a fast food salad as a critter scope too!

Darby Duck the Aquatic Crusader "Critter Scope" activity instructions retrieved on 10 March 2013 from http://www.epa.gov/owow/NPS/kids/critterscope.html

The World from the Point of View of a Dabbling Duck
Following the "Critter Scope" Activity described above, complete the watercolor portion of this exercise using the instructions below. The participants should use the observations they made during the "Critter Scope" activity to help them develop images for their watercolor painting.

The world from the point of view of a dabbling duck. You've seen examples of how **dabbling ducks** "dabble" in the water and how **diving ducks** dive. Now think of what the underwater world looks like to each of them.

EXPRESS

ACTIVITY: Imagine you are a dabbling duck, tipping upside down, usually in shallow water to feed on water plants and small animals. What do you see? Now imagine that you are a diving duck. You actually dive underwater and swim around looking for small animals and fish. What do you see? Use watercolors to paint the underwater world that each duck may see.

Dabbling ducks "tipping up." © Ted Nigrelli

USFWS JDSP Youth Guide "The World from the Point of View of a Dabbling Duck" retrieved on 6 December 2015 from http://www.fws.gov/migratorybirds/pdf/education/JuniorDuckStamp-YouthGuide.pdf

Northern Pintail: A Species in Decline
Participants will read about the three waterfowl species in the descriptions given below. They will also be provided with three problems causing waterfowl decline and three possible solutions to these problems. In small groups, match each waterfowl species to the problem impacting their populations and to a solution to that problem.

Theme: Species in Decline

Species in decline: Scaup, Pintail, and Common Eider. Why are populations of some species of waterfowl declining? There may be multiple reasons for each species that is in decline. Each species has unique **adaptations** and **behaviors**. Changes in the environment may affect one species more than another. Reasons for decline often involve changes in the habitat. They affect certain species because the changes affect specific habitat elements that are important to those species.

EXPLORE

ACTIVITY: Match species, problems, and solutions. Following are descriptions of three species of ducks that are in decline and three problems with habitats. Look for clues in their **breeding**, migration, and food habits to decide which problem is important in the decline of which species. Then look at "How you can help" and decide which action will help which species.

This activity is a good challenge for a small group of students working together. To make it easy to talk about which bird goes with which problem and which possible solution, photocopy the information cards and glue each onto a separate piece of paper. You should have nine pieces of information:

Birds: 1) Scaup, 2) Pintail, and 3) Common Eider.

Problems: 1) Farming and land use practices; 2) Exotic invasive species; 3) Habitat changes, predators, and lead poisoning.

How people can help: 1) Protect shoreline areas and don't use lead shot to hunt waterfowl; 2) Take care of your boat and equipment; 3) Farmers leave fields **fallow**.

Read all the information on your own, and then in your small group discuss which problem is important to the decline of which species? Which solution might help?

Summarize your findings in your Nature Notebook.

USFWS JDSP Youth Guide "Theme: A Species in Decline" retrieved on 6 December 2015 from http://www.fws.gov/migratorybirds/pdf/education/JuniorDuckStamp-YouthGuide.pdf

Unit 5. Learning from the Past; Taking Action for the Future

Scaup

Food habits: Greater Scaup dive to feed on **aquatic** plants and animals. In coastal areas, mollusks constitute the principle diet items. In freshwater habitats, seeds, leaves, stems, roots, and tubers of aquatic plants (sedges, pondweeds, muskgrass, wild celery, etc.) are important items as well as **invertebrates** like snails and aquatic insects.

Greater Scaup drake
USFWS photo by Donna Dewhurst

Breeding: Greater Scaup breed on the tundra and in the boreal forest zones from Iceland across northern Scandinavia, northern Russia, northern Siberia and the western North American Arctic. It is estimated that three-quarters of the North American population breeds in Alaska. Greater Scaup nest predominantly on islands in large lakes and lay an average of nine eggs.

Migrating and Wintering: Greater Scaup make extensive flights across the boreal forests of Canada prior to reaching their wintering grounds along the Atlantic coast and the Great Lakes, or migrate offshore from Alaska to their wintering grounds along the Pacific coast. Greater Scaup occasionally are observed during winter in Central America and the Caribbean.

Population: Greater and Lesser Scaup are counted together, because they are difficult to distinguish during aerial surveys. Scaup populations have steadily declined since the 1980s.

Unit 5. Learning from the Past; Taking Action for the Future

Pintail

Food habits: Pintails dabble and "tip-up" to feed on the seeds of aquatic plants. They also make extensive use of waste grain.

Breeding: In North America, they breed from Alaska, the central Canadian Arctic and western Greenland south to the western and central United States. Northern Pintails nest in open areas near wetlands located in prairie and tundra habitats. Unlike other **dabbling ducks**, Pintails have unique nesting **characteristics**. They prefer to nest away from water in sparse cover. Researchers have found many Pintail nests in the crop stubble that is typical of summer fallow fields, or those that are rested in alternate years. Only one in ten Pintail nests hatches successfully, and Pintails usually don't try to build more than two nests during the spring breeding season.

Migrating and Wintering: Northern Pintails are among the first ducks to migrate south in the fall and north in the spring. Over half of the Pintail population in North America migrates through California. The majority of these birds winter in the Central Valley of California, but some continue south to the west coast of Mexico. Pintails using the Central Flyway winter in the Texas Panhandle and on the Gulf Coast of Texas and western Louisiana. The majority of Pintails using the Mississippi Flyway winter in Louisiana, with smaller numbers wintering in Arkansas, Tennessee, Mississippi, and Alabama. Along coastal wintering grounds, Pintails concentrate on shallow fresh or brackish estuaries adjacent to agricultural areas. Northern Pintails are common winter visitors to Central America, the Caribbean, and northern Colombia.

Pintail duck
USFWS photo by George Gentry

Population: Pintails once were one of the most abundant ducks in North America but have suffered a disturbing decline since the 1950s. In 2009, the breeding population was estimated at 3.2 million birds, substantially below the North American Waterfowl Management Plan objective of 5.5 million.

Unit 5. Learning from the Past; Taking Action for the Future

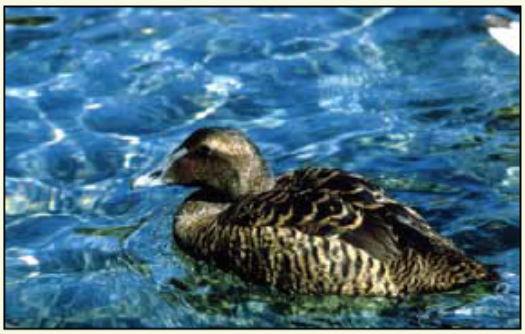
Common Eider

(*Steller's Eider and Spectacled Eider have similar habits and are also in decline*)

Food habits: Common Eiders dive (up to 20 meters deep) to feed on mollusks and **crustaceans** found in shallow waters around submerged ledges and reefs off rocky coastlines. Diet includes mussels, clams, scallops, and urchins.

Breeding: Common Eiders breed along the coastline of Alaska, nearly the entire coastline of Hudson Bay and eastern Canada, as well as the northern coast of Maine. They typically nest on islands or coastline. Nesting habitat varies from open areas or in grasses and weeds to under shrubs and spruce trees. Female Common Eiders often nest in dense colonies (but also nest individually) and lay an average of 3–5 eggs. Most sea ducks have delayed reproductive maturity (they don't reproduce until they are 2–3 years old) and low rates of reproduction (they don't lay many eggs). Even minor reductions in the survival of adults can send populations into decline.

Migrating and Wintering: Common Eiders are difficult to track because most migrate over large water bodies and remote areas. In the east, they winter from Greenland to the Gulf of St. Lawrence and south along the Atlantic Coast to Virginia. In the west, they winter south to southern Alaska. This is one of the only waterfowl species in the world that spends the entire year in Arctic waters. Because they nest in remote areas, very little is known about sources of mortality (causes of death).



Common Eider hen
USFWS photo by Glen Smart

Population: In North America four races of Common Eiders are recognized: Pacific, Hudson Bay, Northern, and Atlantic. In the mid-1970s, the North American population was estimated at 1.5 to 2 million birds. In northeastern North America, the average annual fall flight in the mid-1980s was estimated at 311,000–376,000 birds and the annual number of nesting pairs in the mid-1990s was estimated at 71,000. A general decline has been observed in all North American races.

Over 150,000 pairs of breeding Common Eider ducks once thrived along the Newfoundland and Labrador coastline. Today their numbers are a mere 12,000 breeding pairs.

Problems for Waterfowl: Farming and Land Use Practices

In the **Prairie Pothole** Region, more and more land is turned to cropland every year. Up until the 1970s about half of the land in this region was left fallow ("fal-oh"), or left unplanted every other year. Gradually, more farmers started planting crops every year. These changes have proven challenging to ducks that like to nest in the crop stubble of fallow fields. In fields where at one time ducks could successfully hatch a nest before farm machinery tilled the stubble, they now find either the machinery plows under their nesting attempts, or stubble-covered land is nonexistent. Leaving fields fallow is not only good for ducks, but helps conserve soil.

In California's Great Central Valley, seasonal wetlands (wetlands that are only wet for part of the year) are very important for wintering waterfowl. These include tidal marshes, mudflats, salt ponds, muted tidal ponds, and freshwater marshes. However, these lands are also highly valuable real estate for humans. Balancing the needs of wildlife with the needs and wants of people is a critical task for human society.

Farmed wetland
USFWS photo

Housing development near wetland
USFWS photo by Steve Hillebrand

Unit 5. Learning from the Past; Taking Action for the Future

Problems for Waterfowl: Exotic, Invasive Species

Exotic species are plants, animals, and diseases that are "out of place." Invasive species are those that can out-compete other organisms and take over an area. In new areas where they may not have any natural predators, the populations of these species can literally explode, causing great damage to native plants and animals. These invaders often "hitchhike" on boats, clothes, water toys and other equipment that people use to work and play in the water. People moving from one body of water to another may transport these invaders without even knowing it.

There are many exotic and invasive aquatic plants and animals. The faucet snail is one example. It is an aquatic snail native to Europe that was introduced to the Great Lakes in the 1870s. It was probably brought to North America unintentionally with the solid ballast of large timber transport ships or perhaps with vegetation used in packing crates.

Faucet snails (*Bithynia tentaculata*)
Courtesy of Minnesota Department of Natural Resources

The snail is an intermediate host for three intestinal parasites that can kill waterfowl. These parasites have a complex life history and require two intermediate hosts, such as the faucet snail, to develop. When waterfowl consume the infected snails, the adult parasites attack the internal organs and cause lesions and hemorrhage. Infected birds have difficulty diving and flying before eventually dying. This parasite has contributed to the deaths of about 9,000 Scaup in 2007–08 on Lake Winnibigoshish in Minnesota.

Faucet snails are found on rocky shorelines, river and lake bottoms, aquatic plants, docks, and other objects placed in the water. They can spread by attaching to aquatic plants, boats, anchors, decoy anchors, other recreational gear, and equipment placed in the water. Movement by **waterbirds** may also spread this **invasive species** to new waters.

Learn much more about invasive species and how you can help stop them at the Stop Aquatic Hitchhikers! website (www.protectyourwaters.net).

Faucet snail

Unit 5. Learning from the Past; Taking Action for the Future

Problems for Waterfowl: Habitat changes, predators, and lead poisoning

For most waterfowl in decline there is not just one reason. Various factors combine to decrease survival of adults and young birds. Offshore islands are becoming occupied by people for fishing and farming. This human disturbance affects ducks' ability to breed. Also, because there is less suitable habitat for the ducks, they are more vulnerable to predators like gulls and Arctic foxes. Another hazard for the birds comes in the form of lead. Sometimes lead shotgun pellets used by hunters land in places where birds can eat them. Birds often mistake lead shot for seeds or grit that their **gizzards** use to grind up food. Eating just a few lead pellets can cause lead poisoning, possibly resulting in death. Hunters have made great changes in the way they hunt and the ammunition they use to help protect wildlife populations. Lead shot was banned nationwide for waterfowl hunting in 1991, but it is still used in some remote areas in the Arctic.

How can people help? No. 1

Protect shoreline areas and small islands from human development. Hunters should not use lead shot when hunting waterfowl.

How can people help? No. 2

Whenever you take any type of boat, floats, diving equipment, swimsuits, water toys, or other equipment from one body of water to another, inspect for and remove aquatic plants, animals, and mud before transporting. Preferably spray with high-pressure, hot (120° F) water for a couple minutes. Have your parents run your swimsuit through the laundry, and clean all your water toys and other equipment. Make sure that clothing; pants legs, cuffs and pockets are free from plant seeds and debris, as well as shoes and boot soles that could potentially be redistributed to different habitats. Check out the *Learning and Lending a Hand Program* on national wildlife refuges, where you can volunteer to clean up invasive species (www.fws.gov/invasives/volunteersTrainingModule/).

How can people help? No. 3

Farmers can leave fields fallow (unplanted) every other year. Don't farm areas currently in prairie habitat. Plant unused farmland with native grasses and/or other plants that occur naturally and require less water resources. Some state and federal agency programs and even some local conservation organizations create cooperative agreements with farmers, paying them to keep some of their lands out of production. This is usually done for lands that have bad erosion problems or lands that are highly valuable for their wildlife or conservation benefits.

Why are Wetlands Important for Northern Pintail Survival?
Wetlands, and the uplands surrounding them, provide habitat essential for waterfowl survival. Vegetation, as well as some animals (invertebrates and fish), found in wetland environments are primary food sources for waterfowl. Wetlands and the surrounding areas also offer shelter for building nests, incubating eggs, and raising young.

Create a Conservation Message
Create a conservation message inspired by the Northern Pintail's dependence on wetlands for their survival. Use the Junior Duck Stamp Program Conservation Examples below to assist you in developing this message. The Conservation Message participants prepare today can compete in the State Competition with their Artwork.

Examples of Conservation Messages

The Conservation Message is meant to be a motto, saying or guiding principle expressed as a short statement that expresses what students have learned, experienced, and think about nature and wildlife conservation. It encourages students to use language arts, along with their paintings and drawings, to help record what they see, feel and think.

When developing their message, students might want to ask themselves the following questions:

- What have you learned about ducks, geese, or swans?
- What do you like about waterfowl?
- What is the most important thing you learned about wetlands?
- Using all your senses, how would you describe a wetland?
- Why is it important to learn about conservation efforts?
- What do you think are the greatest threats to waterfowl habitats?
- How can you personally impact waterfowl habitat?
- How can you change the world?

While students are encouraged to read published works and collect their favorite nature-oriented sayings, we again caution them against plagiarizing and copying quotes from others.

Below are the Conservation Messages that have been judged best of show at the Federal Junior Duck Stamp Contest. They are examples of the many thoughts students express each year.

"When conservation becomes a way of life, it benefits all life."
Chris Thiessen, Kentucky, 2006

"Conservation is the key to a better environment for all."
Paul Willey, age 18, Arkansas, 2007

"Conservation is our respect for the past, participation of the present, and or responsibility to the future."
Jeriel Chalk, Colorado, 2008

"Our environment, our responsibility, our future."
Christopher Voekel, age 8, New Mexico, 2009

"Wildlife speaks only the truth about our planet's future, but our greatest challenge is learning to listen."
Patrick Hull, age 14, Arizona, 2010

"Spread your wings, create a splash, make a difference."
Allison Armstrong, age 17, Arkansas, 2011

"Valora, Proteje y Preserva su Habitat." ("Appreciate, Protect and Preserve Your Habitat.")
Amarylis Montalvo, age 15, Puerto Rico, 2012

"Nature is our history, conservation is our future."
Samuel Lambert, 11, Kentucky, 2013

"Conserving a habitat is like painting a background. Without it the picture is not complete."
Max Cheng, age 15, California, 2014

"Nature painted us the wetlands, but it is we who must conserve and appreciate the art."
Sherry Xie, age 14, Virginia, 2015

USFWS JDSP "Examples of Conservation Messages" retrieved on 23 November 2015 from http://www.fws.gov/migratorybirds/pdf/Education/junior-duck-stamp-conservation-program/ExampleConservationMessages.pdf