

Managing Habitat for Mottled Ducks



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A pair of mottled ducks (female at left) loafing on a cattail hummock. Male mottled ducks are identified by a yellow to greenish-yellow bill while females have an orange bill with or without dark markings.

Introduction to the Mottled Duck

The mottled duck (*Anas fulvigula*) is a resident duck of the northern Gulf of Mexico Coast with a primary range in peninsular Florida and the coastal portions of Alabama, Mississippi, Louisiana, Texas and northeast Mexico (see range map on next page). It is a dabbling duck, meaning that it feeds mainly at or near the surface rather than diving underwater for food. Mottled ducks prefer coastal marsh and inland freshwater wetlands, but they also can be found in shallow ponds, flooded rice fields, impoundments and ditches. Because of their non-migratory behavior, mottled ducks must satisfy all their life-cycle requirements from these wetland habitats of the Gulf Coast.

Unlike most North American ducks, male and female mottled ducks are not readily distinguishable from a distance as both sexes have dark brown feathers with buffy brown edges. Bill color is the most obvious feature to identify sex, as male mottled ducks have a yellow to greenish-yellow bill while females have an orange bill with a dark saddle or spots (see image above).

For management purposes, mottled ducks are divided into two geographic populations; Florida and the Western Gulf Coast. Banding data and genetic analyses suggest a lack of interchange or movement of mottled ducks between these two regions. The range for the Western Gulf Coast population of mottled ducks stretches from Alabama, west to Texas and continues south to Tampico, Mexico.



Mottled duck range (green shading) in southeast United States and northeast Mexico.

The Mottled Duck in Texas

The highest densities of mottled ducks are often observed in the fresh and intermediate coastal marshes of the Texas Chenier Plain (Sabine Pass to Galveston Bay). Moderate densities are found in coastal marshes of the Texas Mid-Coast (Galveston Bay to Corpus Christi Bay). The rice producing regions of Texas Chenier Plain and the Texas Mid-Coast also can harbor moderate densities of mottled ducks throughout the year when water is abundant. Lower densities occur in the coastal marshes and interior wetlands in the Laguna Madre region south of Corpus Christi Bay. Common habitats in the Texas Chenier Plain and the Texas Mid-Coast include fresh to brackish coastal marsh ponds, and emergent freshwater wetlands and flooded rice fields of the prairie and agricultural areas near the coast. Within these wetlands, mottled ducks are usually found in shallow water (6-12 inches) near shorelines with abundant vegetation including grasses and aquatic emergent plants. In deep south Texas, mottled ducks are frequently found in resacas (oxbow lakes) of the Rio Grande Valley and freshwater ponds associated with coastal grasslands. During winter surveys, low numbers of mottled ducks also are observed using stock ponds in the Brush County region south of San Antonio.

Recent data from a joint-agency survey indicate a spring breeding population of 61,200 mottled ducks annually (2011 – 2013) in coastal Texas (USFWS and TPWD, unpublished data). Historic numbers were likely greater as mid-winter waterfowl survey data indicate a long-term decline in mottled duck numbers for Texas since 1970. This decline is mostly attributed to the degradation and loss of habitat as mottled ducks are dependent on wetlands along the Texas coast for the entirety of their annual life cycle. Degradation of coastal marsh, loss of natural freshwater wetlands, declines in rice farming and

conversion of grassland nesting habitat continue to be a threat across the entire mottled duck range. The declining population and sustained negative impacts on habitat suggest that mottled ducks deserve a degree of special attention by conservation planners and wildlife managers.

Managing Habitat for Mottled Ducks

Mottled ducks will select habitats based on specific characteristics, such as food type and abundance, water depth, vegetation type and density, and habitat size and placement in relation to other habitats. Habitat can be managed in such a way to improve its potential for use by mottled ducks. Providing and managing habitat for mottled ducks is an important objective for public land managers; however, public lands (state and federal) represent a small fraction of the coastal Texas landscape. Thus, effective conservation actions for mottled ducks need to include efforts on private lands as well. Coastal and agricultural tracts can be effectively managed for mottled ducks. Land tracts with the greatest potential for mottled ducks are those containing a combination of wetlands (freshwater or low-salinity marsh) and good grassland cover.



A prairie-wetland complex at Mad Island WMA consisting of small seasonal wetlands (white arrows), large semi-permanent marsh and grassland nesting cover. Habitat complexes such as this are capable of satisfying habitat requirements of mottled ducks for most of the year.

Habitat Needs

Habitats important to mottled ducks are those that directly and indirectly contribute to nest success, brood survival and adult survival. Therefore, key habitats are those that provide (1) water and food for adults and ducklings; and (2) adequate cover for nesting females, broods and molting adults. The following offers a general description of key habitat needs.

Foraging – Mottled ducks prefer to forage in shallow water that is 12 inches or less in stands of short emergent vegetation, beds of aquatic vegetation, and temporary sheetwater ponds. Emergent vegetation generally does not exceed 50% of wetland area. Common foods eaten include seeds, aquatic vegetation, insects and



A mottled duck pair (center, male on left) and ibis in a small, shallow wetland with short emergent vegetation.

occasionally snails and small fish. Mottled ducks also will feed on rice remaining in fields that are flooded after harvest. Females consume large quantities of insects and other aquatic invertebrates in spring to acquire protein necessary for egg production. Management of seasonal freshwater wetlands, moist-soil impoundments and fallow rice fields can encourage the growth of important seed producing plants such as wild millet, panic grasses, smartweeds, paspalum and spikerush, and promote abundance of aquatic insects.

Pre-breeding – Male and female mottled ducks will begin courtship behavior in late fall and by early winter the majority of mottled ducks have established pair bonds. During this time pairs will separate themselves from other ducks and seek small isolated wetlands or small pockets of open water in larger marsh. Pairs will select sites having qualities described above for foraging and will include features for resting and preening such as small islands, clumps of vegetation or exposed mudflats. Breeding in mottled ducks is influenced by the availability of suitable wetlands in late winter and spring. Without adequate surface water in wetlands during this period, mottled ducks may (1) delay breeding until wetland conditions improve; (2) search for other sites with better wetland conditions; or (3) forego breeding for the year when suitable wetlands are not available.



An example of spring wetland habitat selected by a mottled duck pair (on point of land in center). Notice the small size of the wetland and the presence of screening cover and raised ground for loafing. Small, seasonal wetlands like this can be just as important as larger wetlands, especially in late winter and spring when pairs seek isolated habitats before and during the onset of nesting.

Nesting – Female mottled ducks are ground nesters and prefer nesting in moderately dense grasses (knee to waist high) with little or no woody vegetation. Suitable nesting habitat comprises a grassland tract within 1 mile of a wetland(s) suitable for pre-breeding activities and brood-rearing (see next paragraph). Large tracts (500-1,000 acres) of nesting cover are ideal, but smaller tracts no less than 40 acres can be suitable. In coastal environments, females will nest in well-drained, cordgrass meadows (i.e.; high marsh) near or within fresh, intermediate or slightly brackish marsh complexes. Suitable nesting habitat in agricultural settings include lightly grazed pasture and fallow rice fields that are near seasonal and semi-permanent emergent wetlands.

Features of nesting habitat in agricultural and coastal settings considered important for mottled ducks.

Agriculture	Coastal
Within 1 mile of wetlands suitable for pre-breeding pairs and brood rearing	
Abundant mixture of native bunch grasses	High, well drained brackish-saline prairie ridges
Abundant plant litter	High marsh sites within fresh, intermediate or slightly brackish marsh complexes
Dense growth, but not too dense to impede walking by humans or ducks	
Absent or minimal, dispersed amount of small woody plants	
Tracts of 500-1,000 acres are ideal, but should be no less than 40 acres	
Permanent pasture or fallow rice fields	Grassy islands (≥40 acres) surrounded by water



Examples of suitable nesting cover in a high marsh dominated by Gulf cordgrass (left) and a mixed-grass upland prairie (right). Note the limited amount of woody plants. The yellow stake in each picture marks the location of an actual mottled duck nest.

Brood-rearing – After the ducklings hatch, the female mottled duck will lead them to a wetland(s) with sufficient water, food and cover. Brood-rearing habitat typically consists of coastal marsh, moist-soil impoundments, or seasonal and semi-permanent wetlands having at least an equal distribution of open water and emergent vegetation and in close proximity (less than 1 mile) to nesting habitat. Wetlands used by females and broods usually have short emergent vegetation, mudflats, exposed beds of submerged vegetation and isolated clumps or islands upon which ducklings can rest. Broods also can be found in flooded growing rice where suitable nesting habitat is present nearby. In coastal marsh, ducklings do better where water salinity is low (i.e.; less than 9 parts per thousand). Ducklings are capable of feeding on their own and feed almost exclusively on larval and emerging adult insects during the first 2 weeks after hatching.

They feed primarily in beds of aquatic vegetation, on mud flats, or among stems of emergent vegetation. Thus, preferred brood rearing wetlands are those containing some area where the water depth is less than 6 inches or where dense submerged vegetation is less than 6 inches

Wetland habitat characteristics considered important for mottled duck broods
Within 1 mile of suitable nesting habitat.
Surface water available at least mid-April through July.
Seasonal, semi-permanent and permanent wetlands, coastal marsh and flooded growing rice.
Water salinity less than 9 parts per thousand.
Shallow water and mudflats, and submerged vegetation less than 6 inches from water surface.
Short emergent vegetation that is sparsely to moderately dense or submerged vegetation to support aquatic insects as food source for ducklings.
Some dense patches of emergent vegetation to serve as escape cover.
Total coverage of emergent vegetation not to exceed 50% of wetland area.

from the water surface. Cover should be nearby in the form emergent vegetation at a density that does not hinder mobility of ducklings.



A female mottled duck and her nearly fledged ducklings in a semi-permanent wetland. Note the presence of sparse, short vegetation in the middle and around the edge of the open water, and the dense growth of grass and cattails (background) providing escape cover.

Molting – After completion of breeding activities, adult mottled ducks will experience a flightless period (approximately 27 days) when they molt and replace their feathers. Prior to molting, mottled ducks will select slightly brackish to fresh marsh, semi-permanent to permanent wetlands, and managed freshwater impoundments. Habitats selected by molting ducks are generally similar to those used by broods and contain open water and low herbaceous vegetation. Water depths are typically 6 to 18 inches and escape cover, usually in the form of dense stands of emergent vegetation, is nearby. The molt period occurs during the late summer months (July through mid-September) when seasonal drought may limit wetland availability. During drought, natural and managed wetland sites that hold water through late summer are particularly valuable as large numbers of molting mottled ducks may concentrate in response to decreased wetland availability.

Recommended Management Practices

Availability of water and upland nesting cover are key requirements for mottled ducks. However, periodic management of wetlands and grasslands is necessary to maintain early-successional conditions that mottled ducks prefer. Prior to human alteration, early-successional conditions resulted from natural periodic disturbances, such as drought, flooding, fire and grazing. In the absence of disturbance, wetlands become less productive and upland grasses give way to woody plants. Today, habitat management practices are used to mimic natural disturbances with an objective of maintaining productive wetlands and preventing encroachment of shrubs in grasslands. Without periodic management, wetlands and grasslands will eventually transition to a state unsuitable for mottled ducks. The following management practices are recommended to create and maintain wetland and grassland conditions preferred by mottled ducks.

Water-level Management – Mottled ducks prefer shallow wetlands throughout the entire year (see *Habitat Needs* section above). Wetland units managed for migratory waterfowl in fall and winter can provide excellent habitat conditions for mottled ducks. These enhanced or created wetlands typically have a water control structure to manipulate water levels. Maintaining shallow water levels into summer on managed wetland units can provide maximum benefits for mottled ducks where freshwater coastal marsh and other natural wetlands are absent. Managing spring and summer water for mottled ducks can be rotated with moist-soil management to produce food for wintering migratory waterfowl. Where multiple managed wetlands exist as a complex, spring and summer water management for mottled ducks can be applied on a different wetland or group of wetlands each year, thereby maximizing benefits for both mottled ducks and migratory waterfowl.

Supplemental Water – Availability of shallow water throughout the year is an important component of mottled duck habitat. Nesting activity in mottled ducks is known to be influenced by availability of surface water from late-winter through spring. Access to low-salinity water in spring and summer improves duckling growth and survival. Actions that deliver supplemental water to natural wetlands and man-made impoundments offer the highest potential “rate of return” for mottled ducks. Thus, management actions that maintain water at appropriate depths (see *Habitat Needs* section above) from late-winter through summer will support breeding activities and, in turn, may increase mottled duck numbers. Maintaining water during the molt period of July through mid-September also should be considered as surface water can be limited at this time of year. Providing supplemental water during drought can offer significant benefits for local populations of mottled ducks.



Small, solar-powered wells are ideal supplemental water projects for small wetlands (10 acres or less), as they ensure a constant water supply with few or no operating costs.

Vegetation Management – Mottled ducks are generally attracted to shallow wetlands having open water and short, emergent vegetation with taller, emergent vegetation distributed on the wetland edge or scattered in small clumps. Total coverage of vegetation should not exceed 50% of the wetland. These conditions can be achieved with wetland management practices that disturb vegetation and soil. Without periodic disturbance, wetland conditions can transition to a state that is unsuitable, in which open water is greatly reduced and dense vegetation dominates the wetland. Such conditions hinder mobility and indicate a decline in wetland productivity such that food resources for mottled ducks may be scarce. Vegetation management also may be needed to control growth of non-native plants.

Grasslands also require vegetation management to maintain suitable nesting cover for mottled ducks. Most grassland communities are adapted to disturbance. Without disturbance, woody plant species will increase and eventually reach a level of abundance not suitable for mottled ducks. Disturbance also maintains a vegetation density that allows mobility of ducks and ducklings. Management practices commonly used to control vegetation in wetlands and grasslands are listed below including recommended timing and frequency for each.

Managing Habitat for Mottled Ducks

Practice	Wetland	Grassland
Disking	<p>Controls unwanted plant species and encourages growth of emergent plants that produce abundant seeds and provide habitat for aquatic insects.</p> <p>Promotes an even balance of open water and short, emergent plant cover.</p> <p>Disking wetland units is recommended at least once every 3-4 years.</p> <p>Disking soil in late summer or fall will prepare the site and promote conditions beneficial for mottled ducks the following breeding season, but disking can be done whenever the wetland is dry.</p>	<p>Generally not necessary to maintain good nesting cover conditions.</p> <p>However, light disking in winter may be necessary to manipulate vegetation density when other means cannot be used.</p> <p>Disking is important to prepare a site prior to seeding new vegetation when restoring prairie.</p> <p>Avoid disking grassland cover March through June.</p>
Shredding	<p>Before flooding, shredding can be used to promote open water conditions in a wetland.</p> <p>May need to shred vegetation annually; thus, not as effective as disking.</p> <p>Shredding rank stands of vegetation may be necessary prior to disking.</p> <p>Shredding may be necessary during non-disk years.</p>	<p>Can reduce density of cover from woody plants; however, it does not kill the root stock and other practices are necessary to kill the plant.</p> <p>Can add plant litter and maintain appropriate density of grasses.</p> <p>Avoid shredding during the peak of nesting (March-June).</p>
Roller-chopping	<p>When a wetland is flooded, roller-chopping may be necessary to provide and maintain open water areas when vegetation becomes too dense.</p> <p>Conduct in fall and winter before onset of pairing or March through early April before peak of hatching to provide small, open areas for ducklings.</p>	<p>Not applicable for managing nesting cover.</p>
Grazing	<p>Livestock grazing can be used as an alternative to mechanical disturbance in certain instances.</p> <p>Trampling of the ground by livestock in dry wetlands can have an effect similar to light disking.</p> <p>However, livestock will eat many of the plants that produce food eaten by mottled ducks.</p> <p>Applying high stocking rates over a short period of time (dependent on wetland size) can achieve the desired effect without detriment to habitat.</p>	<p>Light grazing and rotational grazing of native grasses can be beneficial in promoting good nesting cover.</p> <p>Avoid heavy grazing that result in loss of nesting cover, especially before and during the nesting season (March-June).</p> <p>Reducing stocking rates or resting pasture during drought is critical to ensure availability of nesting cover the following year.</p> <p>Additional fencing may be necessary.</p>
Prescribed fire	<p>Efficient method of reducing rank and dead vegetation and controlling invasive woody plants in dry wetlands.</p> <p>Can achieve a mixture of open water and short, emergent vegetation when the wetland is flooded.</p> <p>Adequate fire breaks and specific weather conditions are required to safely and effectively use fire.</p>	<p>Effective at controlling most woody plants and reduces vegetation density in future growing seasons.</p> <p>Can be applied late summer and into winter when conditions are dry.</p> <p>Grasslands should be burned once every 4-5 years.</p> <p>Rotational burning of tracts is ideal to avoid complete loss of nesting cover the following spring, as conditions for nesting may not return until the 2nd growing season after a burn.</p> <p>Adequate fire breaks and specific weather conditions are required to safely and effectively use fire.</p>
Flooding and drawdown	<p>Flooding can be an effective method to reduce cattail and phragmites after manipulation by disking, shredding, burning or herbicide spraying.</p> <p>Occasional drawdown mimics the natural cycle of seasonal wetlands and ensures that productivity (food, cover) remains high.</p> <p>Drawdown of water may be necessary prior to initiating other management practices.</p> <p>Avoid excessive flooding or drawdown treatments during the breeding season (January-July) as it prevents use by mottled ducks.</p>	<p>Not applicable for managing nesting cover.</p>

Practice	Wetland	Grassland
Chemical herbicide	<p>Can be used to control unwanted vegetation over large areas or individual plants.</p> <p>Perhaps the most effective means of controlling large stands of non-native plants, such as Chinese tallow, water hyacinth, Macartney rose and deep-rooted sedge.</p> <p>Vegetation may require manipulation using other practices before or after application of chemical herbicide to increase success.</p> <p>Herbicide product and method of application depends on type and condition of target vegetation, presence of desirable plants and size of area to be treated.</p> <p>Timing of application is generally late growing season when the foliage is still green (July-September), but some chemical herbicide products may differ.</p> <p>Always consult product labels and manufacturer representatives for proper methods, application timing and rates, and tank mixtures.</p>	

Predator Management – A number of mottled ducks are killed and consumed each year by predators. Eggs and ducklings also are subject to predation. Common mammalian predators of nesting hens and ducklings include raccoons, skunks, foxes, coyotes and mink. Alligators are known to take ducklings and molting adults. Other water-borne predators of ducklings include snapping turtles, large predatory fish and occasionally large bullfrogs. Raccoons, skunks, ground squirrels, rat snakes and feral hogs will readily eat the eggs after finding a nest. Hawks and owls also will take adults and ducklings that are not in adequate cover. Increased rates of predation on adults, nests and ducklings are a concern because population growth is determined by the number of adults and young that survive and breed the following year. Removing predators and reducing predator encounters with mottled ducks may improve breeding production at a local scale if habitat is managed to provide optimal conditions for breeding. The following guidelines should be considered for reducing predation on adults, eggs and ducklings.



A mottled duck nest destroyed by a predator. Eggs eaten by a mammalian predator usually have yolk stains and the shells are partially or entirely crushed.

Management guidelines for reducing predation on mottled ducks.

- Target known mammalian predators of hens and eggs such as raccoons, foxes, coyotes, skunks and mink.
- Target small areas of nesting cover known to have high densities of mottled duck nests.
- Apply where predator control can be sustained for multiple years and where it can be combined with wetland and grassland management to provide optimal conditions for nesting and brood-rearing.
- Minimize land management actions that would result in areas void of cover between habitats suitable for nesting and brood-rearing where ducklings would have to cross and be exposed to predators.
- Minimize deep borrow areas in wetlands suitable for brood-rearing and molting as deep water (2 feet or more) provides potential habitat for alligators, snapping turtles and large fish.

Compatibility with Other Land Uses

Habitat management for mottled ducks can be integrated with other land uses. Continuous management for mottled ducks may not be practical, but opportunities do exist to provide beneficial habitat when and where land use conflicts are minimal. In some situations, certain activities may be mutually beneficial. Land uses that have potential for benefiting mottled ducks with some changes in management practices include rice farming, permanent pasture, and impoundments managed for wintering waterfowl.

Rice Cultivation – Rice production on the Texas Coast generally follows a 2- to 3-year rotation. A field is cultivated in rice for a single growing season and then is left unplanted for the following 1 to 2 growing seasons. The arrangement of flooded, growing rice fields and dry fallow fields provide an opportunity for managing breeding habitat for mottled ducks. Active rice fields are typically flooded April through mid-July and can provide adequate habitat for pairs and ducklings. The grasses and forbs growing in dry fallow fields can provide nesting cover of moderate quality (especially in the 2nd fallow year) as long as activities that manipulate vegetation are delayed until July. Grazing of rice fields after harvest should be delayed initially to allow for establishment of nesting cover (grasses) and then cattle should be introduced at a low stocking rate. Mottled ducks will visit flooded harvested rice fields to feed on waste rice and other weed seeds.



Active growing rice (left) with a mottled duck swimming (center of image) beside a rice levee and a fallow rice field (right) colonized by grasses and forbs. Lands dedicated for rice production on the Texas Coast can provide habitat of moderate quality for breeding mottled ducks with some changes to existing land use practices.

Pasture Lands – Permanent pasture for cattle grazing represents a significant land use type on the Texas Coast. Pasture lands that are adjacent to or contain wetland habitat(s) suitable for pre-breeding and brood-rearing (see *Habitat Needs* section) have potential as nesting habitat for mottled ducks. Quality of nesting cover is better in pastures that are lightly grazed or have been rested for a period of time before the breeding season. Rotating cattle among different pastures and allowing pastures time to rest between grazing periods can sustain healthy forage conditions and promote good nesting cover. Rotational grazing (also called managed intensive grazing) can promote pastures that are resistant and resilient to drought. Intensive brush management can increase foraging area for cattle and improve conditions for mottled duck nesting especially where suitable wetlands are within 1 mile. For hay fields where mottled ducks are suspected to nest, cutting should be delayed until mid-June or July when most mottled ducks have completed nesting activities and ducklings have moved to brood-rearing wetlands.

Managed Impoundments – Developed wetland units, which are generally managed to benefit migratory waterfowl in winter, have potential value for breeding mottled ducks. The common practice is to drain the wetland unit at the end of winter as migratory waterfowl begin to leave the Texas Coast. Keeping water control structures closed through spring will provide suitable wetland habitat for mottled duck pairs during the early part of the breeding season. Where impoundments are adjacent to suitable nesting habitat (see *Habitat Needs* above) land managers should consider capturing water from rainfall through mid-summer to provide wetland habitat for ducklings. Managing spring and summer water for

mottled ducks can be rotated (every other year or every 2 years) with traditional moist-soil management practices during the growing season for migratory waterfowl.



A managed impoundment flooded during the growing season and located within a pasture can provide important habitat for breeding mottled ducks where natural wetlands are limited. Note the smaller “pot-hole” wetlands (lower right corner) that can provide early breeding season habitat for pairs.

Landowner Assistance Programs

Many assistance programs are available for landowners who are interested in developing and managing wetland and grassland habitats on their property. These programs offer technical guidance toward project design and management. Some programs offer cost-share assistance depending on landowner eligibility and project type. The following offers a brief description of some conservation assistance programs that have potential for helping landowners improve habitat for mottled ducks.

Program	Description	Contact Information
Texas Prairie Wetlands Project http://www.ducks.org/texas/texas-projects/texas-prairie-wetlands-project	A cooperative program delivered by Ducks Unlimited that provides cost-share assistance (up to 65% of project costs) and technical guidance to develop and enhance wetland habitat for waterfowl on the Texas Coast.	Call (832) 595-0663 or send an e-mail to texasprairiewetlandsproject@gmail.com
U.S. Dept. of Agriculture – NRCS Conservation Programs http://www.nrcs.usda.gov/wps/portal/nrcs/main/tx/programs/	NRCS’s various conservation programs provide technical guidance and cost-share assistance for eligible practices such as wetland enhancement and restoration, brush management, prescribed burning and native grass planting. Landowner eligibility requirements apply.	Find your local USDA – NRCS office at http://offices.sc.egov.usda.gov/locator/app?state=TX
U.S. Fish & Wildlife Service – Coastal Program http://www.fws.gov/southwest/texascoastal/index.html	The Texas Coastal Program works with partners to enhance and restore wetlands and prairies in the Texas coastal zone.	Call (281) 286-8282 or (512) 994-9005
U.S. Fish & Wildlife Service – Partners for Fish & Wildlife Program http://www.fws.gov/southwest/es/arlintonexas/pfw.htm	The Partners Program provides technical and financial assistance to private landowners that have a desire to provide suitable habitat on their property for wildlife.	Call (512) 994-9005

Program	Description	Contact Information
Texas Parks and Wildlife Department – Landowner Incentive Program http://www.tpwd.state.tx.us/landwater/land/private/lip/	A cost-share reimbursement program delivered by Texas Parks and Wildlife Department (TPWD). TPWD will contribute 50% to 75% of total project costs. Common practices include native grass restoration, exotic vegetation control, prescribed burning, brush management and wetland enhancement.	Find your local TPWD biologist at http://www.tpwd.state.tx.us/landwater/land/technical_guidance/biologists/
Texas Parks and Wildlife Department – Technical Guidance Program http://www.tpwd.state.tx.us/landwater/land/private/wildlife/	TPWD wildlife biologists are available to provide technical guidance for managing habitat and assist with development of a habitat management plan specific to a landowner’s needs and capabilities.	Find your local TPWD biologist at http://www.tpwd.state.tx.us/landwater/land/technical_guidance/biologists/

Other Conservation Considerations for Mottled Ducks

Lead Poisoning

Mottled ducks and other waterfowl are known to ingest pellets from spent shotgun shells while foraging for seeds or when acquiring grit to aid in digestion. Prior to 1991, shotgun ammunition for hunting waterfowl contained lead pellets. Non-toxic shot requirements for waterfowl hunting were fully implemented in 1991 because of the high rate of shot ingestion by waterfowl and the lethal effects of lead toxicity. Unfortunately, annual monitoring by Texas Parks and Wildlife Department and U.S. Fish and Wildlife Service indicate that mottled ducks still continue to ingest lead pellets that (1) were deposited prior to the non-toxic shot requirement; (2) are a consequence of illegal lead shot use; or (3) are a result of non-waterfowl hunting. Shotgun ammunition loads filled with lead pellets are legal for hunting doves, and some sites managed for dove hunting along the Texas Coast are subsequently flooded (or are adjacent to sites flooded) to provide habitat for waterfowl in winter (e.g.; harvested and fallow rice fields, moist-soil impoundments). Thus, it is possible that mottled ducks and other waterfowl may ingest lead shot in areas where dove hunting and wetland management for waterfowl occur. For lands managed in this fashion, it is recommended that non-toxic shotgun loads be required for dove hunting to reduce rates of lead shot ingestion and subsequent lead poisoning in mottled ducks and other waterfowl.

Hybridization

Mottled ducks and mallards are closely related species and are capable of interbreeding and producing fertile offspring. Hybridization between mottled ducks and mallards is not responsible for the population decline in Texas as mallard-mottled duck hybrids are not easily discernible from “pure” mottled ducks during population surveys. However, hybridization is a threat to the genetic integrity of mottled ducks and management actions should be implemented to minimize interactions between mottled ducks and mallards (i.e.; feral, released or domesticated). Mallards should not be released (intentionally or unintentionally) to prevent any chance of interaction and hybridization with native mottled ducks. Captive-raised or domesticated mallards used for dog training and field-trial events should be surgically pinioned (wing severed at joint furthest from the body) and always recovered before leaving the field.

Mottled Duck Annual Cycle and Habitat Management Calendar

January	February	March	April	May	June	July	August	September	October	November	December
Breeding season (nest searching, egg laying, incubation and brood-rearing)							Pair formation				
Peak of nest initiation			Molting period								
Delay drawdown of impoundments and maintain water levels							Manage water levels for migratory waterfowl and mottled ducks				
Roller chop vegetation	Disk or shred wetland units as they dry out					Roller chop vegetation					
Avoid manipulation of pasture and hayfields where nesting may occur							Lightly disk or shred nesting cover as necessary if pre-scribed burning is not an option				
Lightly graze or rest pasture where nesting may occur			Lightly graze or rest pasture where nesting may occur in spring								
Pre-scribed burning	Delay cutting hay where nesting is suspected					Use pre-scribed burning to control woody vegetation					
Spray woody vegetation with chemical herbicide***											

*** Always consult herbicide product labels and manufacturer representatives for proper timing.

- Annual cycle activities and behavior of mottled ducks.
- Wetland management recommendations.
- Nesting cover management recommendations.



For additional information pertaining to mottled ducks and their habitats please contact:

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The recommendations for managing habitat provided in this document are very general and may not be suitable for a specific site. They are intended to be used as guidance to assist landowners in developing a management plan to improve habitat for mottled ducks on their property. Texas Parks and Wildlife Department biologists are available within your county (http://www.tpwd.state.tx.us/landwater/land/technical_guidance/biologists/) for consultation and assistance in developing a site-specific management plan.



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